

# LOW WAGES, PRIVATE INDEBTEDNESS AND CRISIS A MONETARY THEORY OF PRODUCTION APPROACH

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The aim of this paper is to provide an interpretation of the current crisis on the basis of the theoretical framework of the monetary theory of production (MTP). It will be shown that the current crisis crucially depends on policies designed to redistribute income at the expense of workers, with particular reference to labour market deregulation and restrictive fiscal policies. Insofar as these policies reduced total demand, they negatively affected firms' profits, thus driving firms to bankruptcy and consequently leading to a decline in money supply. At the same time, firms producing luxury goods obtain profits via rentiers' expenditure. Moreover, it will be suggested that the banking policy – via 'hoarding' deriving from the worsening of expectations of individual banks, which primarily affects inter-bank payments - can produce further negative effects, insofar as it implies a reduction in money supply and hence in production, employment and wages. As a general result, an economic policy which inhibited public intervention proved to be the main cause of the financial crisis, while the drop in wages and employment is its main effect.

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JEL: B22, E14, E24

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## 1 - Introduction

In the early stages of the 2000's there was a broad consensus – among mainstream economists - that consumer credit tends to produce positive social outcomes, since consumer credit growth is high when households are optimistic about their future income and, thus, consumer credit growth has a positive effect on future consumption (Maki, 2000). In this view, financial innovations - such as the development of subprime mortgages - allow a relaxation of credit rationing, favouring the poor or those in minority communities, previously considered too risky by traditional lenders (Kiff and Mills, 2007). The bankruptcy of Lehman Brothers and the explosion of the financial crisis in September 2008 largely contributed to the emergence of a different line of thought, which however does *not* represent a *radical* recantation of the neo-liberal doctrine. There is now support for the idea that the current financial crisis mainly depends on 'imperfection' in the functioning of financial markets as well as on the low capacity of households to deal properly with the information issue when acquiring financial products. It is also recognized that financial markets have been subject to 'over-extended' deregulation and that this has resulted in too much 'financial innovation'.

The aim of this paper is to suggest a different interpretation of the current crisis, emphasising that it ultimately depends on low wage policies as well as on restrictive fiscal policies, in the theoretical framework of the monetary theory of production – hereafter MTP (see Graziani, 2003). Although the crisis originated in the USA, the generalization that will be put forward is largely independent of the macroeconomic dynamics of individual countries. Arguably, it can be

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read as an *underconsumption crisis*, which finds its causes in the dynamics of labour markets. The rationale for this arguments runs as follows. First, labour market deregulation produces a decline in wages (see below). Moreover, as in the standard Keynesian view (Keynes, 1936), restrictive fiscal policies, insofar as they reduce the level of employment, also contribute to the drop in wages, due to the fact that as employment declines so does workers' bargaining power. In institutional contexts where banks are perfectly accommodating – as they also are in supplying workers with liquidity - the decline in wages stimulates workers to contract debts with the banking system, in order to maintain their target level of consumption. Accordingly, *worker indebtedness depends on low wages*, which, in turn, derives from restrictive fiscal policies and labour market deregulation. At the same time, profits are guaranteed by rentiers' expenditure. Therefore, under a liberal regime, capitalist reproduction is guaranteed by consumer credit and by the expenditure of the unproductive class. On empirical grounds, as regards the first effect, the consumer credit index in the Eurozone – provided by the ECB – has grown from 7.6 in 2004 to 8.7 in 2008. the Bureau of Economic Analysis certifies that – in OECD countries - rents increased to 40% from 2000 to 2008 while profits rose more than 80% in the same period<sup>1</sup>. While in the short-run, aggregate money profits are thus guaranteed by private indebtedness (and by rentiers' consumption), in the long-run when workers become incapable of repaying their debt to banks, aggregate money profits fall. The consequent bankruptcies of firms generate a drop in bank profits<sup>2</sup> and, as a result, banks react via 'hoarding'<sup>3</sup>. 'Hoarding', in turn, derives from the worsening of expectations of the individual banks, which primarily affects inter-bank payments. The reduction of the credit supply has a negative effect on production, employment and wages. As a general result, *a policy of redistribution at the expense of workers (and at the benefit of rentiers) emerges as the cause and at the same time the ultimate effect of the financial crisis*.

On the methodological plane, the model presented here aims to insert elements of 'macrofoundation of the microeconomics' into the MTP. This means that individual behaviours are explicitly taken into consideration, but, unlike the mainstream view, they are not regarded as being generated in an institutional *vacuum*, as they are profoundly affected by group affiliation, and by norm-driven behaviours (i.e. what is also labelled 'weak individualism'). This is in line with a line of research within the MTP approach. As Zazzaro (2003, p.220 and pp.230-231) points out: "Methodological individualism, if we understood in a weak form, is not the exclusive domain of neoclassical theory". This is because "adopting a weak individualist perspective means only denying that interpersonal entities, like institutions, organizations or social classes, are endowed with anthropomorphic properties, with their own wishes, aims and driving forces that are distinct and independent of those of individuals who constitute and belong them. This amounts to saying that phenomena that involve such impersonal entities and their evolution can only be *explained* by making reference to the actions of a single individual or group of them, which at least in part are intentional". As a result, the acceptance of 'weak individualism' does not mean excluding classes or social groups from economic analysis.

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<sup>1</sup> As Epstein and Power (2003) stress: "There is no commonly accepted definition of rentier income. Most authors use a definition to denote income that accrues from financial market activity and the ownership of financial assets rather than activity in the "real" sector or the holding of "real" assets such as real estate or capital equipment. For example, Keynes, in his *General Theory*, refers to the rentier as "the functionless investor," who generates income via his ownership of capital, thus exploiting its "scarcity-value". For this paper, rentier income will be defined the way Michel Kalecki used the term: it represents the income received by owners of financial firms, plus the return to holders of financial assets generally". In what follows, and in line with Keynes' view, rentier income is defined as derived from the ownership of "real" assets.

<sup>2</sup> A theoretical model on the links between bankruptcies and the closure of the circuit has been provided by Messori and Zazzaro (2005)

<sup>3</sup> See Lavoie (1992), among others, for a discussion of 'hoarding' and banks' liquidity preference.

The exposition is organized as follows. Section 2 deals with the link between workers' indebtedness and the 'closure' of the monetary circuit. In section 3 a theoretical model is presented, aimed at showing that low wage policies are both the cause and the effect of the financial crisis, and section 4 concludes.

## 2 – Worker indebtedness, financialization and the 'closure' of the circuit

The MTP describes the economic process as “a circular sequence of monetary flows” (Realfonzo, 2006, p.105). The MTP comes out of a methodological approach based on a continuist reading of Keynes's major works, in particular of the *Treatise on Money* (TM) and the *General Theory* (GT) (see e.g. Fontana, 2003, Seccareccia, 2003 and more recently Forges Davanzati and Realfonzo, 2008b)<sup>4</sup>. The MTP general schema 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 buy inputs and produce commodities; workers supply labour power. The circular process of monetary economy (see Figure 1) starts with the 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, firms fix the price level, so that real wages are known ex-post. If workers' propensity to consume is less than one, firms can recuperate the unspent money by selling securities in the financial market. However, the financial market can begin operation only after banks have produced money. It could be shown that the assumption that firms fix prices under the mark-up rule leads to the same results as when – as in the case considered by some circuitists – firms autonomously decide to divide the social product between consumption goods and investment goods. This is because investment goods are conceived as the share of social product that the firms take as their own. In this sense, a high level of production of investment goods is equivalent to a high rate of profit. The MTP emphasises that income distribution is primarily determined by firms' decisions that are reflected in the value of the mark-up. This means that within the MTP approach income distribution among banks, firms and workers depends on the relative market and social power of the agents. Note that according to this theory the distribution of power is structurally unequal since banks and firms control monetary variables (see Rossi 2001; Bellofiore, Forges Davanzati and Realfonzo 2000). The monetary circuit closes with the repayment of the initial finance to banks, i.e. the 'destruction' of the money originally created. Various points of convergence link MTP scholars: *a*) money is a pure symbol (a bank liability) and money supply is endogenous and demand-driven; *b*) the unitary money wage is assumed to be exogenous, depending on the relative bargaining power of firms and workers; *c*) the level of employment depends on firms' decisions about how much and what to produce, and these in turn depend on firms' expectations about aggregate demand and profits (the capitalist economy does not assure full employment); *d*) the consumer sovereignty principle is not in operation; *e*) income distribution is not based on the marginalist distribution rules but on power relationships; *f*) state intervention, mainly through fiscal policy, is required in order to increase aggregate demand and employment, both in the short and in the long run (see Graziani, 1990 and 2003; Realfonzo, 1998 and 2008; Fontana and Realfonzo, 2005; Parguez 1975; Poulon 1982; Deleplace and Nell, 1996). It is worth noting that – in this schema – *the*

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<sup>4</sup> MTP scholars read the TM as the theory of reproduction of the capitalistic economy in equilibrium, where money is used as a means of payment; while they regard the GT as the explanation of economic crises, generated by lack of aggregate demand and where the role of money is reversed to become a store of value.

*interest rate is a “tax on profits”*. Moreover, inflation is not a monetary phenomenon, it is not caused by an excess of money supply, but it mainly depends on distribution conflicts.

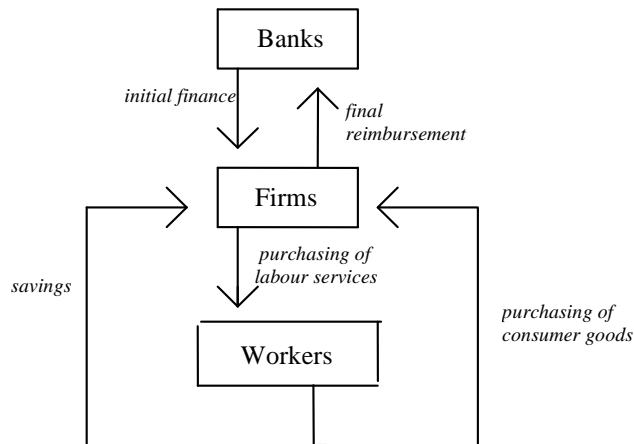


Figure 1: The monetary circuit

In this schema, 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, but also to make a profit. The lack of realization of a monetary surplus can be seen as a theoretical problem if one rejects the conviction – supported, among others, by Graziani (2003) – that a “normal” level of indebtedness on the part of firms toward the banking system is a key feature of contemporary capitalist economies. It is worth noting that the paradox of profits is not something which pertains to the logical structure of the MTP and, hence, it should not be conceived as a pure logical puzzle. On the contrary, it focuses on a key problem of the capitalist system, namely the problem of the realization of a monetary surplus (see Bellofiore, Forges Davanzati and Realfonzo, 2000). 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 MTP approach 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. Schematically, in recent history, capitalists have solved the problem of the realization of a monetary surplus in two ways. First, in a Keynesian regime, aggregate money profits are guaranteed via public expenditure, in view of a ‘monetary crowding in effect’ (see Kalecki, 1971)<sup>5</sup>. Second, in the liberal regime, the same result is obtained via private indebtedness, increasing financialization, wage cutting and the reduction of public intervention<sup>6</sup>. Figure 2 shows the fluxes of purchasing power when workers’ indebtedness and rentiers’

<sup>5</sup> An analytical demonstration of this effect has recently been provided by Forges Davanzati, Pacella and Realfonzo (2009).

<sup>6</sup> Following Kalecki (1971 [1943], pp.138 ff.), one can argue that since policies of deficit spending increase the rate of employment and capitalists aim to maintain a stable level of unemployment (both for political reasons, i.e. in order to safeguard their power of ‘disciplining’ workers, and for economic reasons, i.e. in order to maintain the possibility to cut wages), capitalists tend to prefer devices aiming at allowing them aggregate money profits while excluding State intervention.

consumption are taken into consideration. On the one hand, workers receive credit – via private indebtedness - from banks and spend it on consumer goods. On the other hand, rentiers also obtain credit and spend it on luxury goods. The model presented here takes into consideration the idea espoused by Lavoie (1992, pp.152 ff.) and Hein (2008, pp.100 ff.) that the ‘closure’ of the circuit is guaranteed by the expenditure on the part of the rentiers<sup>7</sup>. An extension of this approach will be provided based on the idea that *i*) the economy is made up of a sector producing wage-goods and a sector producing luxury goods, *ii*) rentiers only consume the second kind of goods. Rentiers can obtain credit by means of the guarantees they offer on the basis of the estates (their real properties), which are in their possession at the beginning of the circuit. The following section will deal with the operation of this model.

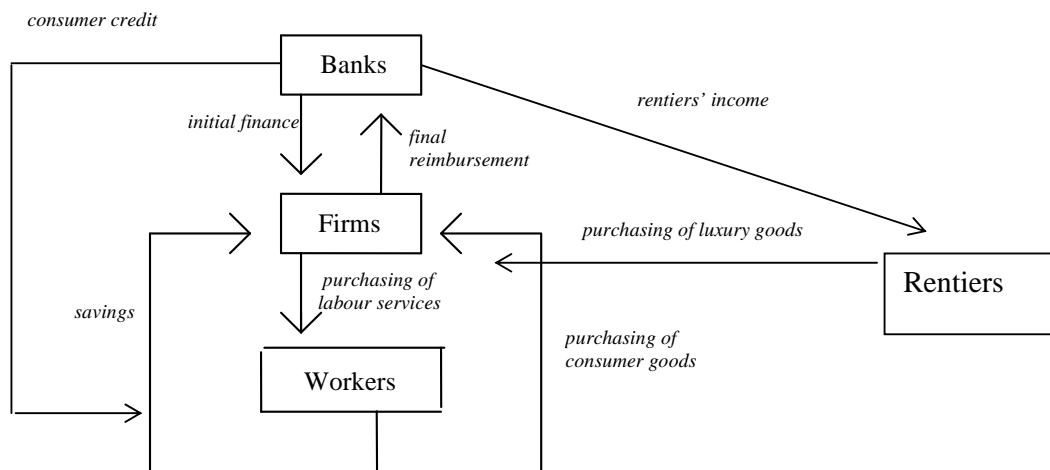


Figure 2: workers' indebtedness and rentiers' consumption in the monetary circuit

### 3 – Income distribution and financial crisis: a theoretical model

For the sake of analysing the theoretical links between low wage policies (involving both labour market deregulation and restrictive fiscal policies) and financial crisis, a simple two-period model will be presented. It is assumed that technology shows constant returns. Labour market deregulation is in operation, and the higher the degree of deregulation ( $\alpha$ ), the lower the unitary wage. The rationale for this assumption lies in the following consideration. Labour market deregulation implies a reduction of the State intervention in the labour market and decentralization of wage bargaining. In both cases, workers' bargaining power falls, as does the unitary wage. As shown, among others, by Forges Davanzati and Realfonzo (2004), labour market flexibility reduces wages owing to the operation of the following effect: on the demand side, due to the increase of uncertainty connected with temporary jobs, workers tend to reduce their current propensity to consume, in order to keep their consumption at least constant over time. On the supply side, due to the ‘discipline effect’, temporary jobs may increase labour

<sup>7</sup> Hein (2008, p.74) refers to “payment commitments to rentiers’ households”

productivity<sup>8</sup>, thus increasing the production potentiality of employed workers. The (potential) increase in labour productivity with a declining aggregate demand gives rise to a reduction of employment and, insofar as the unitary wage is proportional to the rate of employment, to a reduction of wages. Moreover, there is a great deal of evidence that labour flexibility tends to disincentivate innovation, thus reducing the growth rate and hence employment and wages (see, among others, Forges Davanzati and Pacella, 2009)<sup>9</sup>. It is also assumed that workers aim at reaching a level of consumption almost constant over time, which they can achieve by spending their wage ( $w$ ) and/or via consumer credit ( $D$ ), and the banking system is assumed to be perfectly accommodating both for financing production and for financing consumption. Of course, for a given target level of consumption, indebtedness increases when wages decline. Moreover, the propensity to become indebted ( $d$ ) is proportional to workers' expectations on future wages ( $e$ ) – assumed as an exogenous given - and is inversely proportional to the interest rate. Furthermore, under the assumption that as the unitary wage increases, so does employment, expansionary fiscal policies, which increase the level of employment, determine an increase in the unitary money wage. It is assumed that two types of firms exist: type-1 firms producing wage goods and type-2 firms producing luxury goods. Firms cannot move from one sector to another, due to the costs of the possible conversion of their production processes. The upper classes (i.e. the rentiers) consume only luxury goods, while workers consume only wage goods. The unitary money wage is a given ( $w^o$ ) and workers' propensity to consume is equal to 1. Rentiers are assumed to obtain credit from banks on the basis of a share of the nominal value of their estates, and this amount of credit is assumed as exogenous. Firms, in both sectors, set the level of employment under fixed technical coefficients ( $\lambda$ ). Therefore,  $N_w=K/\lambda$  is the employment in sector 1 and  $N_L=K'/\lambda$  is the employment in sector 2. As a result,  $Q_w=\pi(K/\lambda)$  is the production of wage goods, where  $\pi$  is labour productivity, assumed as exogenous, and  $Q_L=\pi(K'/\lambda)$  is the production of luxury goods. Moreover, firms fix prices under the mark-up rule, including the money interest rate, i.e.  $p=(w/\pi)(1+r)(1+i)$ . Finally, the interest rate is assumed to be equal for both sectors<sup>10</sup>.

In view of the description above, financial rents are:

$$R = Fr \tag{1}$$

where  $Fr$  is the amount of purchasing power that the banking system gives rentiers according to the guarantees they offer on the basis of their real estates, and  $R$  is assumed to be a given, depending on the target level of consumption on the part of rentiers, as well as on their bargaining power in the money market. In so doing, a further source of short-term 'initial finance' is admitted (cf. Hein, 2008, p.101). As a result, type-2 firms' aggregate money profits are:

$$\Pi_2 = cR - wN - iF \tag{2}$$

where  $c$  is rentiers' propensity to consume,  $i$  is the money rate of interest and  $F$  the initial finance obtained by firms. Equation 2) shows that: a) the higher  $R$ , which presupposes a high target level of consumption on the part of the rentiers, and/or the nominal value of their estates ;

<sup>8</sup> This effect may be counterbalanced by the drop in 'morale' – and hence in effort and productivity – due to the insecurity connected to increasing risk of dismissal. Otherwise, temporary jobs may disincentive capital accumulation (see, among others, Standing 1999).

<sup>9</sup> On the empirical plane, OCSE reports that, for most industrialized countries, high values of EPL - Employment Protection Legislation - are correlated with high values of wages and employment (see Brancaccio, 2008).

<sup>10</sup> It is not necessary – for the purpose of this paper - to made explicit assumptions on the possible specialization of individual banks in financing one sector or another.

b) the lower the interest rate; c) the lower the money wage bill, then the higher are the net aggregate money profits for firms producing luxury goods. It could be pointed out that a link can be established between the interest rate and the rentiers' current consumption, so that as  $i$  increases  $cR$  would logically decrease, and so do aggregate money profits in sector 2. This conclusion leads to a distributive conflict between 'financial' and 'industrial' capital, not only because high interest rates are associated with high financial costs for firms, but also because high interest rates reduce current expenditure. Equation 2 shows that financialization – in the form of increasing rentiers' income - can be a device for the realization of a monetary surplus for firms as a whole, and thus – on the theoretical plane – a relevant factor for the 'closure' of the monetary circuit. In this context, *capitalist reproduction requires the existence of an unproductive class, which consumes without directly contributing to the increase in production*. For the sake of analysing the path of profits in sector 1, the individual worker's target level of consumption ( $C^*$ ) must be established, as follows:

$$C^* = cw(\alpha) + D[d(i, e)], \quad \frac{\partial d}{\partial i} < 0 \quad e \quad \frac{\partial d}{\partial e} > 0 \quad [3]$$

Where  $i$  is the rate of interest,  $w$  is the unitary money wage,  $D$  is individual indebtedness, depending on the propensity to contract debts, which is in turn assumed to be a function of the interest rate (it is expected that as the interest rate increases,  $d$  decreases) and a positive function of workers' expectations on their future wages. Note that, in this theoretical framework, expectations are exogenous, depending on the prevailing confidence and hence on workers' optimism/pessimism.

Equation 2 establishes that – once the desired consumption has been established – workers can reach it by spending their wage and by contracting debts. It is worth noting that, as  $\alpha$  increases, due to the consequent decline of  $w$ ,  $D$  increases. In other words, *labour market deregulation stimulates indebtedness on the part of workers*. Note also that, in the event the unitary wage decline, the short-run propensity to consume ( $c$ ) must increase in order to allow workers to consume what they desire. However, in a long-run perspective, the lower the current propensity to consume, the higher the possibility of reimbursing the debt. One can suppose that  $c$  depends on workers' expectations on their future wages, so that the more confident they are about the future increase in wages the higher their current propensity to consume. It is reasonable to consider that workers stop contracting debts and become insolvent when their consumption is equal to or lower than a minimum subsistence level ( $C^0$ ). Note also that  $C^*$  may depend on emulative effects, so that the less equal income distribution is, the more workers tend to imitate: and this can occur both due to imitation among workers and to workers imitating capitalists (see Forges Davanzati and Pacella, 2008)<sup>11</sup>. In particular, 'divide and rule' strategies, designed to segment the labour-force into low-paid and high-paid jobs also by means of labour market deregulation, insofar as such strategies produce greater wage differentials, are likely to incentivate imitative effects in consumption, thus raising  $C^*$  for workers as a whole and hence making low-paid workers more willing to get into debt. Accordingly, one of the main problems for capitalist reproduction under a liberal regime is to *induce workers to desire more goods*<sup>12</sup>. Accordingly, habits, customs and traditions, insofar as they produce low values of  $C^*$ , act as an obstacle to capitalist reproduction.

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11 As Keynes (1973 [1936], p.14) remarked in the *General Theory*: "Since there is imperfect mobility of labour, and wages do not tend to an exact equality of net advantage in different occupations, any individual or groups of individuals, who consent to a reduction of money-wages relative to others, will suffer a *relative* reduction in real wages, which is a sufficient justification for them to resist it".

12 Apart from indebtedness, this can lead to the increase in working hours. As Bowles and Park (2005) show, working hours tend to increase as income distribution become less equal.

By aggregating individual functions of desired consumption, under the assumption that workers are homogeneous, one obtains:

$$\sum_{i=1}^N C_i^* = cw_i(\alpha) + D_i[d(i, e)] = cw(\alpha)N + DN \quad [3']$$

where  $N$  is the number of employed workers (and possibly also the unemployed receiving benefits). By assuming that public expenditure is nil, type-1 aggregate money profits become:

$$\Pi_1 = \sum_{i=1}^N C_i^* - w_1(\alpha)N_1 - iF \quad [4]$$

Note that total consumption includes consumption, and hence indebtedness, also on the part of workers employed in type-2 firms. Equation 4 shows that type-1 firms are in a position to obtain a monetary surplus only insofar as a *i*) sector producing luxury goods exists, since this sector employs workers who purchase wage goods; *ii*) workers' propensity to contract debts is high enough. Note also that – in view of equation 4 – short-term net money profits rise *i*) when the value of  $\alpha$  rises, i.e. when the labour market is more deregulated, since – in view of equation 3' – this implies high values of  $D$ ; and *ii*) they are inversely proportional to the money interest rate. In a purely theoretical way, equation 4 might also be used in order to describe the normal operation of a 'Keynesian regime', in the cases where net public expenditure is positive (i.e. a deficit spending policy is in operation) and the labour market is regulated. Since, in this regime, workers are supposed to achieve their target consumption, due to the stability of contracts and to the positive effect of  $G$  on the level of employment and hence of the unitary wage, there is no need for workers to enter consumer credit, and aggregate money profits are  $\Pi = G - iF$ . This is a monetary 'crowding in' effect, i.e. public expenditure is complementary to private investments, and increases profits (see Kalecki, 1971). By contrast, a 'liberal regime' – such as that dominating in the last decades – is characterised by low values of public expenditure (say, for simplicity's sake,  $G=0$ ), labour market deregulation and a massive use of consumer credit. In this context, the realization of a monetary surplus can be guaranteed by high values of  $D$  and by rentiers' consumption. In particular, for  $G=0$ , the value of  $D$  and  $R$  that allows  $\Pi > 0$  must be such that  $(D + cR) > iF$ . In other words, given the money interest bill, workers' indebtedness plus rentiers' consumption must be higher than the cost of debt at the expense of firms.

In a liberal regime, since as  $R$  increases so do  $\Pi_1$  and  $\Pi_2$ , for a given interest rate and for a given  $F$ , the rate of profits ( $r$ ) increases in both sector. As a result,  $p_1$  becomes:

$$p_1 = (w/\pi)[(w_2N_2 - iF)/F](1+i) \quad [5]$$

so that the price level of the wage goods increases in the money wage bill of workers employed in sector 2. Thus, for a given unitary money wage, the higher  $w_2N_2$  is, and hence the higher  $K$  and/or the lower  $\lambda$  is in that sector, the lower the unitary real wage is. It could be also noted that, insofar as  $\Pi_2$  increases and so does the rate of profit in that sector, the price of luxury goods



increases too<sup>13</sup>. Aggregate money bank profits ( $\Pi b$ ) are a ratio  $\beta$  of firms' profits plus the interest on consumer credit, minus banks' operative costs ( $Cb$ ):

$$\Pi b = \beta\pi + i_c D - C_b \quad [5']$$

where  $i_c$  is the rate of interest on consumer credit. And banks are assumed to react to their decreased profits by 'hoarding'<sup>14</sup>. Accordingly, labour market deregulation and restrictive fiscal policies produce the following results. On the basis of equation 1, the decrease of  $G$  has a direct negative effect on firms' profits. At the same time, labour market deregulation (i.e. the increase in  $\alpha$ ) stimulates workers to enter consumer credit, thus increasing aggregate money profits (in sector 1) *until workers as a whole reimburse debt to the banks*. By excluding the case where workers continue to contract debt in order to pay off debt, so that debt is paid with part of the wages, the solvency condition on the part of workers and with respect to the banks can be derived as follows:

$$D(1 + i_c) = [1 - c]w(\alpha) + I \quad [6]$$

By considering the unitary wage and the income not deriving from labour as givens, equation [6] is satisfied when the savings on part of workers,  $[1 - c]w(\alpha)$ , and their real guarantees,  $I$ , are equal to the indebtedness cost,  $Di_c$ ; only in this case, in fact, is the debt value,  $D$ , equal to zero, as shown as follows:

$$\begin{aligned} D(1 + i_c) &= [1 - c]w(\alpha) + I \Rightarrow \\ \Rightarrow D + Di_c &= [1 - c]w(\alpha) + I \Rightarrow \\ \Rightarrow D &= [1 - c]w(\alpha) + I - Di_c \end{aligned} \quad [6']$$

where  $D = 0$  if and only if  $[1 - c]w(\alpha) + I = Di_c$ .

Equation [6'] also shows that, by again considering to be constant both the savings of workers and their real guarantees, if the rate of interest on consumer credit,  $i_c$ , increases over time, the indebtedness cost,  $Di_c$ , also increases, making the workers insolvent. In this case, employees will react by reducing their propensity to contract debts, causing at first a reduction in their consumption, according to the equation [3'], and consequently a reduction in the aggregate money profits in sector 1 and in the bank profits, according to equations [4] and [5']. This same situation would occur even if banks offer liquidity in the absence of guarantees (i.e.  $I=0$ ). In this case, in fact, debt can be paid only from current savings. Note that – in this schema and in the absence of a Central Bank – the variation of the interest rate can also be conceived as serving to increase profits for the banking system. Accordingly, the increase in  $i_c$  can be read as a result of

<sup>13</sup> This could lead the rentiers to demand more finance in order to buy them, and, as a result, to give rise to a cumulative process of price and credit increase.

<sup>14</sup> Note that the finance to production does not enter equation 5', because, in accordance with the adopted schema of monetary theory of production, the creation of money from banks at the beginning of the circuit to fund the production, begins with a double accounting, in which  $F$  appears both as assets and as liabilities (see Graziani, 2003). Moreover, if the financial costs at the expense of workers is included as a short-run gain for banks, the rationale for not taking into consideration the reimbursement of the debt on the part of rentiers lies in the consideration that – at least in a short-run perspective – they enjoy a higher bargaining power with respect to the banking system, so that that they can more easily postpone the reimbursement.

optimistic expectations on the part of banks about the course of workers' demand for consumer credit, since – in this case – the expected revenues for banks rise as the interest rate goes up.

Under the condition that – for the individual worker –  $cw \geq C^o$  holds, where  $C^o$  is the subsistence level of consumption, lower than  $C^*$ . In equation 6,  $i_c$  is the rate of interest on consumer credit and  $I$  is the income not deriving from labour. Equation 6 shows that *i)* the more deregulated the labour market is; *ii)* the higher the interest rate on consumer credit; *iii)* the lower the value of  $I$ , the more difficult it is to repay debt (plus interest). Note also that condition 6 can be reached only insofar as workers save part of the current wage in order to reimburse their debt, which is likely to occur when workers reduce their target level of consumption. Moreover, if banks offer liquidity in absence of guarantees (i.e. with  $I=0$ ), it may happen that debt can be paid only from current savings, and obviously the risk of insolvency on the part of workers increases. Assuming, for the sake of simplicity, that workers spend the entire  $D$  in one period, if condition 6 is not satisfied (so banks do not supply more liquidity to workers), aggregate money profits in sector 1 in the ensuing production period ( $t+1$ ) become:

$$\Pi_{t+1} = cw(\alpha)N - w(\alpha)N - iF < 0 \quad [7].$$

Equation 7 establishes that firms producing wage-goods remain indebted with respect to the banking system. In the event the number of failed firms is significant, and these firms are the most indebted with the banking system due to their sizes and hence to the magnitude of their investments, this is likely to be a sufficient condition for banks as a whole to worsen their expectations in relation to inter-bank payments. Banks react via 'hoarding', i.e. by reducing the supply of credit (which gives rise to a credit crunch)<sup>15</sup>, i.e.:

$$\sum_{i=1}^{n-m} Ft + 1 - Ht + 1 < \sum_{i=1}^n Ft \quad [8]$$

where  $n$  is the total number of banks at the beginning of the period,  $m$  the number of failed banks and  $H$  is the amount of money that banks hoard, in view of the worsening of their expectations. In view of equation 8, the higher the number of failed banks, the lower the credit supply. Since, by assumption, the level of employment is set on the basis of fixed technical coefficients (i.e.  $N=K/\lambda$ ), once the credit crunch is in operation, for a given the unitary money wage, it becomes:

$$K' / \lambda = \left( \sum_{i=1}^{n-m} Ft + 1 - Ht + 1 \right) / w \quad [9]$$

which is lower than the initial level of employment, and the lower it is, the more banks tend to 'hoard' (i.e. the higher the value of  $H$ ). Note that hoarding causes both unemployment and capital underutilization, measured by the difference between  $K$  and  $K'$ . Moreover, in the event workers are not able to oppose a reduction of money wages, since the initial finance for firms as a whole is a given, the level of employment may not decrease. In any case, *low wages are both a cause and a consequence of the crisis*. In view of equation 8, in fact, the reduction of credit,

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<sup>15</sup> In a similar vein, Lavoie (2006, p.71 ff., italics added) points out that "As for banks, liquidity preference involves their desire to extend bank loans. For instance, banks with high liquidity preference are reluctant to increase loans or to take on new customers ... It represents the *confidence* that banks have on the *uncertain* future ... In an asset-based system, where banks hold government securities, we can measure liquidity by considering the risk-free securities to loans ratio".

insofar as it mainly affects firms producing wage goods, generates a reduction of employment in sector 1 and, as a result, also a reduction of wage-goods production. Note also that the decrease in employment in sector 1 may positively affect profits in sector 2, in the event it is associated with a decline of  $w$  (see above, equation 2). However, there could be a counterbalancing effect, which consists of the fact that this condition holds only insofar as ‘hoarding’ on the part of the banking system mainly affects the sector producing wage-goods. Otherwise, by means of the reduction of credit supply to the sector producing luxury goods, real financial rents decline as well. This effect is amplified in the realistic case where the individual banks finance both the production of wage-goods and the production of luxury goods. It is worth noting that, in a liberal regime, capitalist reproduction is allowed by two sources of private expenditure - i.e. workers’ expenditure via indebtedness and rentiers’ consumption – since the first is more unstable than the second<sup>16</sup>, so that *only unproductive consumption on the part of rentiers can guarantee the macroeconomic realization of a monetary surplus*. However, one can observe that financialization produces instability and, as a result, cannot guarantee a *continuous* realization of aggregate money profits. This occurs for the following reason. The temporary increase of profits, insofar as it generates an increase in the rate of profits in both sectors (for a given unitary money wage), generates a rise in the prices of both wage goods and luxury goods, with the following effect. The increase in the prices of luxury goods reduces real rents and, as a consequence, the guarantees that rentiers are able to offer to banks.

Of course, in this simplified schema, the *social sustainability* of this macroeconomic dynamics is not taken into consideration, although it is difficult to suppose that firms’ profits can be generated via a continuous decrease of real wages, the emergence of mass unemployment and capital underutilization, and increasing income inequalities<sup>17</sup>. Otherwise, crisis also involves a decline of bank profits and this can be a sufficient reason for capital to demand public intervention, at least in the banking sector. Moreover, as regards, in particular, firms producing wage-goods, since the reduction of their profits ultimately depends on low wages, only external interventions - namely, expansionary fiscal policies, as well as an exogenous increase in wages - aiming at increasing total demand, can stop this vicious circle.

#### 4 – Concluding remarks

This paper dealt with the current crisis within the theoretical framework of the monetary theory of production. It has been suggested that crisis ultimately depends on labour market deregulation and on restrictive fiscal policies, i.e. on the main policy prescription of the liberal view. First, labour market deregulation, insofar as it reduces wages, stimulates worker indebtedness. The consequent increase of consumer credit allows the realization of a monetary surplus, on the macroeconomic plane. Second, restrictive fiscal policy also contributes to reducing ‘external finance’ to the benefit of firms, also generating a decline in wages and employment. When workers become unable to reimburse their debt, total demand falls, and so do profits. As a result, bank profits decline too, and banks react via hoarding, thus reducing the money supply (i.e. the “credit crunch”), thus generating a further decline in employment, output and wages. Since, in

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<sup>16</sup> The rationale for this argument lies in the fact that banks tend to ‘discriminate’ agents also on the basis of their ‘reputational capital’, which is normally linked – as this is the case – to their real wealth. If this is the case, one can suppose that rentiers enjoy a higher bargaining power than workers with respect to the banking system, so that they can more easily postpone reimbursement. See, among others, Diamond (1991) who remarks that payment conditions – such as interest rates and monitoring costs of contracts – are particularly heavy for those without a successful personal credit history.

<sup>17</sup> A significant inequality of income distribution may give rise to social conflict. Bowles and Jayadev (2005) have recently shown that criminality and guard-labour increase when income distribution becomes more unequal.

this theoretical framework, crisis depends on low wages, only external interventions aimed at increasing total demand can stop this vicious circle.

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