FINANCIALISATION AND THE MONETARY CIRCUIT: A MACRO-ACCOUNTING HETERODOX APPROACH

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ABSTRACT: This paper aims to cross-breed the standard monetary circuit accounting model with inputs from the current Post-Keynesian literature. The goal is twofold: (i) to analyze the impact of household credit-based consumption, fed by capital-asset inflation, on the soundness of a ‘pure sign-money’ economy of production; (ii) to supply a bit more sophisticated description of the working of modern financial systems than the one grounded on the usual ‘bank-based vs. marked-based’ distinction.

KEY WORDS: Monetary Theory of Production; Social Accounting Matrix; Banks and Financial Markets

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Contents

1. Introduction .................................................................................................................. 2
2. The Monetary Circuit in ‘Money-Manager Capitalism’ ........................................... 5
3. Basic Assumptions and the Accounting Framework ................................................. 7
4. The Effect of ‘Capital-Asset Inflation’ on Profits ...................................................... 9
5. Financialisation, Prices and the Distribution of Income ........................................... 13
6. Beyond the Market-Based vs. Bank-Based Dichotomy ........................................... 16
7. Concluding Remarks .................................................................................................... 19
References ......................................................................................................................... 19
Figures ................................................................................................................................. 22
Appendix: the road to hell ................................................................................................. 24
Tables and Key to Symbols ............................................................................................... 26

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1. Introduction

The Franco-Italian approach to the Monetary Theory of Production (MTP hereafter) – also known as the Theory of the Monetary Circuit (TMC) or the Circulation Approach – is the landing place of a composite research field which was pursued by French and Italian authors (such as Barrère, 1979, 1990; Graziani, 1977, 1984, 1989, 1994, 2003; Parguez, 1975, 1996, 2001; Poulon, 1982) in the mid-1970s and which mainly reached a more ‘developed’ stage during the subsequent decades. The field deals with a rediscovery of some of the most far-reaching aspects of the analysis of Karl Marx, whose conception of the economic system – which he regarded as a ‘monetary economy of production’ – shows a considerable degree of affinity with a set of heterodox monetary theories that were developed during the twentieth-century (see Messori, 1983). The obvious reference is the ‘hidden’ line of studies that is drawn from the point at which the most influential work of Knut Wicksell, *Geldzins und Guterpreise [Interest and Prices]* was published (in 1898), and then merges into the monetary theory of Joseph Schumpeter and the *Treatise on Money* (1930) of John Maynard Keynes. There are, evidently, strong ties between the set of Franco-Italian approaches to the MTP and the Cambridge (UK) School of Keynesian Economics – i.e. the school which refers to the direct pupils of Keynes (Richard Kahn, Nicholas Kaldor and Joan Robinson) and to Michal Kalecki. However, it is within the pioneer and seminal work of some French scholars – notably, Jaques Le Bourva (1962) and Bernard Schmitt (1960, 1972, 1975, 1984) – that we can find the early attempt to build a general macro-monetary circuit model aiming to be an alternative to (and in competition with) the traditional (simultaneous) general equilibrium model.

Nowadays, the TMC presents a noteworthy degree of resemblance to,

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1 Whose authors are usually called, somewhat ironically, ‘les circuitistes’.
2 See Lucarelli and Passarella (2012a,b). As is well-known, the ‘Monetary Theory of Production’ was the title of the early project of the General Theory dating back to 1932. Afterwards, Keynes used the same title for both his Cambridge courses of monetary economics (1932-33, 1933-34) and in a brief article that was published in a Festschrift for the German economist Arthur Spiethoff.
3 The definition derives from Pasinetti (2005) and includes those authors who are usually known as the ‘English’ (or ‘Anglo-Italian’) post-Keynesians, based in Cambridge, England. They were interested especially in the analysis of production, distribution and economic development. Notice that in the second label the adjective ‘English’ is used in order to distinguish them from the so-called ‘American’ post-Keynesians, who are interested mainly in the analysis of money and finance.
4 We have to mention also the Italian economists who came to be appointed to the academic staff of Cambridge – notably, Piero Sraffa, Luigi Pasinetti and Pierangelo Garegnani.
5 In the wake of the previously mentioned founding fathers of the TMC (which includes the French circuit approach, the Italian circuit approach and the so-called ‘Theory of money emissions’ or ‘Quantum theory of money’), there is a noteworthy number of scholars from France (Richard Arena, Claude Gnos and Elie Sadigh), Italy (Riccardo Bellofiore, Emiliano Brancaccio, Roberto Convencivole, Giuseppe Fontana, Guglielmo Forges Davanzati, Marcello Messori and Riccardo Realfonzo), Canada (Marc Lavoie, Luois-Philippe Rochon and Mario Seccareccia) and Switzerland (Alvaro Cencini and Sergio Rossi).
and/or consistency with, the current post-Keynesian economics and the other radical approaches as well\(^6\). There are, of course, many and deep theoretical differences between authors such as Marx, Wicksell, Schumpeter, Keynes and Minsky, as well as between the New Cambridge simulation modeling and, say, the ‘linguistic’ research of Bernard Schmitt. Yet, the Franco-Italian approach to the MTP shows that those divergences can be regarded as less relevant than the views that they have in common with each other. More precisely, the keystone of the TMC is the association of the Keynesian concept of ‘initial finance’ with the Marxian notion of ‘money-capital’ (see Messori, 1983). On this basis, TMC authors depict the working of capitalism as a ‘monetary circuit’, i.e. a circular sequence of economic acts involving the use of sign-money created ex nihilo by banking system. In detail, the causal-chain which marks an ‘artificial’ monetary economy of production, made up of only three sectors (non-financial corporations, workers and banks), is opened by the decision of corporations to borrow from the banking sector. This flow of credit-money, named the initial finance, is used to pay a wage-bill to workers in return for the labour-power required to start the process of production. Notice that the labour-force bought thanks to the bank initial finance is the only item that the corporate sector (considered as a whole) cannot reproduce by itself. Once any production cycle is concluded, wage-earners spend one portion of their income in the commodity market and a second portion in the financial market, on the purchase of securities issued by firms\(^7\). Notice that, for corporate sector considered as a whole, there is no difference between these two sources of expenditure: in both cases, the liquidity flows back to it in the form of final finance. However, wage-earners can also decide to save part – the third portion – of their income by holding it in the form of bank deposits (or even in the form of cash balances, if the government sector is included in the model). In this case, the greater the liquid balances held by wage-earners, the greater the losses of revenue suffered by the corporate sector. Nevertheless, as wage-earners use the whole of their income both on expenditure of consumer-goods and/or the purchase of securities, corporations are able to repay their debt and ‘the circuit is closed “without losses”’ (Graziani, 2003, p. 30)\(^8\).

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\(^6\) Significantly, a number of authors refers to the TMC as the ‘post-Keynesian Circuit approach’ (see Halevi and Taouil, 2002) or the ‘French and Italian post-Keynesian school’ (see Godley and Lavoie, 2007). Among the works suggesting integration between the theory of monetary circuit and the current post-Keynesian studies, see also Godley (1999), Lavoie (2004, 2006), Zizza (2004, 2012), Keen (2009), and Pilkington (2009). For an opposite opinion that, on the whole, is critical of the monetary circuit approach (which is regarded as a mere ‘pedagogical’ instrument), see Cavalieri (2003).

\(^7\) For the moment, we assume away the other real and financial assets held by households.

\(^8\) We simplify away the repayment of interest (in monetary terms) to the banks. In the next sections, following Zizza (2004, 2012), we will assume implicitly that the ‘financial period’ (which starts when the bank loan is created on demand of corporations, and ends when the loan is paid back) is longer than the ‘production period’ (in which corporations recover liquidity from sales and pay the interest to banks, which, in turn, spend this liquidity to purchase goods and/or equities from corporate sector). This will allow us to treat interest payments consistently. On this out-and-out rebus (or conundrum) of the circuit approach, see also Parguez (2003), Lavoie (2004), Rochon (2005), Bellofiore and Passarella (2009).
It is starting from this stylized description of the working of a monetary economy of production that we are able to isolate and to highlight the theoretical cornerstones of the TMC, which are: (i) the rejection of the so-called ‘methodological individualism’ (and of its associated notions of ‘micro-foundations’ and ‘representative agents’) in favour of a model that considers explicitly the hierarchic relationships among different economic sectors; (ii) the adoption of a sequential model, characterized by non-ergodicity – which, of course, is in stark contrast to any neoclassical notion of a simultaneous general equilibrium; (iii) the endogenous determination of the supply of money which is considered a pure sign, i.e. a mere book-keeping liability in the balance-sheet of the issuing bank; (iv) the rejection of the ‘marginalist’ theory of distribution in favour of the so-called ‘Kalecki-Keynes formulation’, which is not only close to the Post Keynesian theory developed by Kaldor and Joan Robinson but also consistent with Sraffa’s approach as well; (v) the idea that credit-money and finance really matter (both in the short- and in the long-run) and that this makes capitalist economies intrinsically unstable. Finally, notice that MTP (and hence TMC) authors share also a number of epistemological presumptions. Besides refusing the old neoclassical individualist reductionism, they also oppose the ‘instrumentalist’ epistemology embraced by the majority of current mainstream economists. By contrast, most MTP authors regard the aim of the economic theory as to explain what happens in the ‘real’ world. Consequently, a good economic theory has to start from ‘stylized facts’ (i.e. a specific class of basic abstracted hypotheses which are derived from the observation of the empirical – or ‘concrete’ – capitalist reality) and hence to recognize the existence of both institutions and different social classes, in a world marked by radical uncertainty. Notice that MTP authors do not deny that a theory could arise from a process of abstraction. What is claimed is that this abstraction must always be – in Marx’s words – ‘historically determined’.

The ‘standard’ version of the monetary circuit framework is doubtless a fine description of the effective working of Western capitalist economies during the 1950s-mid 1970s. However, since the end of the 1970s, especially in the US and in the UK, stock markets and financial business sector have progressively taken on a role which seems to be much more relevant than the ‘passive’ one assigned by the TCM. Even the banking sector has seemed to
shift its core towards consumer-credit and the managing of financial activities, thereby changing its nature into fee-related business. To the extent that those changes become permanent features of modern financially-sophisticated economies, ‘circuitist’ analysis needs to be updated. This is the starting point of the remainder of the paper, which is organized as follows. Section 2 deals with the remarkable change in the historical structure of the circuit of monetary payments in high-income economies. Sections 3 presents the basic assumptions behind the accounting framework developed in the subsequent sections. Sections 4 and 5 analyze the impact of ‘capital-asset inflation’ on the financial-economic soundness of the corporate sector and hence of the whole economy. In section 6 we try to provide a more sophisticated description of the working of modern financial systems than the one grounded on the usual ‘bank-based vs. marked-based systems’ dichotomy. Some concluding remarks are provided in section 7.

2. The Monetary Circuit in ‘Money-Manager Capitalism’

We know that a distinctive feature of a growth-oriented productive system – such as the one analyzed by Keynes and, in the wake of him, further analyzed by TMC authors during the 1970s – is the major role of banks in the financing of production (and investment), where security market plays a passive role in channelling household saving towards production corporations. However, as Mario Seccareccia has asserted in a recent (unpublished) work, since the end of the 1970s financial markets have begun to take on a central role first in Anglo-Saxon countries and then in other Western economies. In fact, ‘growing profits and retained earnings associated with a relatively weak business investment have slowly transformed (or “rentierized”) the non-financial business sector itself into a net lender’ (Seccareccia, 2010, p. 4) that seeks higher financial returns on its internal funds. At the same time, households’ saving has fallen drastically: since the 1990s, the household sector in the most part of Anglo-Saxon countries has increasingly become a net borrower, rather than a net lender (that has been long considered as households’ ‘traditional’ role). On the money-supply side, banks have become ‘financial conglomerates’ that seek to maximize their fees and commissions by issuing and managing assets in off-balance-sheet affiliate structures. This has produced a change with respect to the standard monetary circuit framework, where the banking system is assumed to finance the activity of the corporate sector (current production and, at a lower level of abstraction, investment plans). In fact, during the so called ‘Money Manager Capitalism’, the traditional link between non-financial firms and banks ‘has been largely severed […] and it is the dynamics of the banks/financial markets axis […] which has taken center stage’ (Seccareccia, 2010, p. 6).

In Fig. 1 the simplest version of the monetary circuit is represented by the sequence (1)-(5). For the sake of simplicity, we are assuming that households use their incomes (i.e. both labour-incomes and capital-incomes) for buying commodities and/or securities (say, shares) issued by corporate sector, with any increase in their holdings of bank deposits being excluded. In short, within a monetary economy of production, the usual (i.e. logical) sequence is: (1)
commercial banks lend to the non-financial corporations, enabling them to start the process of production, as well as to finance each individual investment plan (but notice that, at the macroeconomic level, the purchase of intermediate goods is an exchange ‘internal’ to the firm sector); (2) corporations use the initial finance to pay a money wage-bill to households in return for the labour-power that those corporations need; (3.a,b) once the production process is over, households spend a percentage of their income in the commodity market and hold the rest in the form of financial assets (by hypothesis, equities issued by corporations); (4) the liquidity (notably credit-money) that is spent in both the equity market and the commodity market comes back to the corporate sector as a whole; (5) insofar as non-financial corporations get back their monetary advances, they are able to repay (the ‘principal’ of) their bank debt\(^\text{12}\).

Yet, as has already been mentioned, during the last decades the process of financialisation of Western economies has involved a remarkable change in the historical structure of the monetary circuit. The strategic position of banks and financial markets in this ‘new capitalism’ made in US (and UK) is depicted in Fig. 2. On the one hand, the creation of credit-money has been increasingly sustained by household debt \((L_h, \text{hereafter})\) rather than by the demand for finance of the corporate sector (see arrow 1). On the other hand, household debt has fuelled the transactions on the financial markets (both on the corporate stock market and on the other financial asset markets) because of the demand arising from the growing saving (i.e. money profits) of the corporate sector (see arrow (3) in Fig. 2)\(^\text{13}\). In short, the sequence which marks the ‘new’ monetary circuit is virtually opened by the decision of banks to grant credit to households on the basis of their wealth (i.e. the stock of assets hoarded by households) (arrow (1)). Households spend both this flow of credit-money and (a share of) their income in the commodity market (arrow (2)). To the extent that corporations are able to fund their desired productive investment plans, they can assign a percentage of the retained earnings to both the equity market and the market of other financial assets (i.e. generic ‘securities’ issued by banking sector, within the simplified model we are developing in the next sections). In the former corporations can repurchase a part of their own shares – either from other firms or from households and banks (arrows (4.b)-(4.c))\(^\text{14}\). In the latter banks and financial intermediaries place financial assets (for instance, derivatives such as the notorious ‘collateralized debt obligations’ or CDO) which are indirectly ‘monetized’ by

\(^{12}\) Notice that if households do not hoard deposits, then even the sums paid by corporations as dividends on shares flow back to the same corporate sector. For a complete analytical description of the standard monetary circuit phases, we refer the reader to Graziani, 2003.

\(^{13}\) Notice that loans funding household credit-based expenditure turn into an equivalent amount of bank deposits received by the corporate sector as a whole. That amount of deposits (in excess of the funds needed to undertake the production and the investment) feeds corporate ‘over-capitalization’, allowing firms to invest in financial assets. On this point, see Toporowski, 2008; Toporowski and Michell, 2012.

\(^{14}\) The reasons why the single corporation buys back its stock are: (i) to sustain the price of its-own shares; (ii) to settle the level of internal liquidity; (iii) to distribute income to its owners in the form of capital gains.
non-financial corporate saving (arrows (3)-(4.a)). This happens because, in the presence of rising prices and returns in the financial markets, ‘it may become profitable for overcapitalised firms to allocate excess capital to financial assets in preference to engaging in real investment’ (Toporowski and Michell, 2012, p. 20). The final outcome is that, eventually, corporations assume the role of net lenders, whereas households become net borrowers.

3. Basic Assumptions and the Accounting Framework

In the remaining sections, the effect of the process of financialisation on the soundness of the corporate sector, and hence of the circuit of money payments of the whole economy, will be analysed within social accounting formal model where three macro-sectors are explicitly included.

(i) **Households** (or wage-earners). This sector comprises individuals who sell their labour-power to firms in return for a money-wage. They spend their income in order to acquire the desired quantity of consumer goods and financial assets (i.e. bank deposits and equities). They can also borrow in order to feed their extra-consumption. However, by definition, households cannot access to bank (initial) finance in order to start the process of production.

(ii) **Non-financial corporations** (or firms). For the sake of simplicity, this sector is assumed to include firms which produce a single homogeneous output by means of labour and use the same output-good as an input. In order to start the process of production, firms need to borrow from banks and to use that finance to purchase labour-power from households. Once the production is concluded, corporations enter financial markets in order to place their-own shares and to subscribe a number of assets (i.e. both their-own equities and other securities issued by financial sector).

(iii) **Integrated financial sector** (or financial-banking sector). It’s the macro-sector that includes central bank, commercial banks and the other non-bank financial intermediaries. Notice that, within a ‘pure credit’ economy, central bank is just supposed to settle the target rate of interest on refinancing, and to lend to commercial banks. Commercial banks, in turn, lend credit-money to corporations, households and non-bank financial operators. Finally, financial operators issue financial assets. More precisely, they issue equities which are bought by households, and other securities which are subscribed by corporate sector. Finally, both banks and financial operators (may) hold a percentage of non-financial corporate capital stock.

From points (i) to (iii), it follows that we are rejecting the usual distinction between commercial banks and investment banks, as well as the one between

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15 On a heterodox interpretation of the effective rule followed by the central banker in the settling of the target rate of interest, we refer the reader to Brancaccio and Fontana (2012).
banking sector and non-bank financial intermediaries. Furthermore, we are assuming that households demand (and obtain) bank loans in order to finance consumption beyond the limit of their disposable income\textsuperscript{16}. Notice that, since those loans are supposed to be an increasing function of household net wealth, consumption increases (decreases) as the price level in the financial market increases (decreases). Thus, in the presence of flat corporate investment at least, ‘autonomous’ consumption induced by asset inflation must be regarded as the real engine of the considered artificial pure credit economy. Notice that both the government sector and foreign markets are to be ignored at this stage of the analysis.

In the wake of the current stock-flow consistent modelling (SFCM, hereafter), previous hypotheses have been summarized within a set of sectoral accounting sheets\textsuperscript{17}. These latter constitutes the ‘skeleton’ of the circuit model we are going to discuss in sections 4 and 5. The starting point of SFCM authors is that, at the macroeconomic level, every financial asset always needs a counterpart liability, and vice versa. To this regard, tables 1, 2 and 3 assure the respect of the condition of aggregate stock-flow coherence. In detail, TABLE 1 represents the nominal balance-sheet matrix of our artificial pure sign-money closed economy of production; TABLE 2 is the corresponding transaction-flow matrix; and TABLE 3 shows uses and sources of funds within the economy – that is to say, it shows the monetary budget constraint faced by households, corporations and financial sector, respectively. More precisely, each column of TABLE 1 shows current stocks of assets and liabilities of every sector; each row of TABLE 2 shows the flow of expenditures, income and transfers from one sector to another; finally, each column of TABLE 3 shows how each sectoral balance sheet is affected by current flows. This point is worth of some additional comments. Fourth column of TABLE 3 shows the identity between the productive investment undertaken by corporations and its sources of financing (bank loans, equities and retained profits, net of the purchase of financial assets). As for the causality, we are assuming that bank loans are defined in ‘residual’ and ‘revolving’ terms, namely, as the external funds that corporations need to cover non-self-financed productive investment (in addition to current production). Second column TABLE 3 shows household flows of funds. Notice that, to the extent that bank loans are used to finance extra-consumption, this entails an additional and (potentially) lasting indebtedness for household sector. The point is that consumption, differently

\textsuperscript{16} On this point, see also Palley (1994) that emphasizes the role of consumer debt within a Minskian context.

\textsuperscript{17} For a complete model derived from this accounting framework, we refer the reader to Passarella (2012b). To this regard, notice that (in the current heterodox literature) the label ‘stock-flow consistent’ is typically associated with a specific set of macroeconomic post-Keynesian models mainly developed by Wynne Godley and the scholars of the Levy Institute of New York (see Godley and Lavoie, 2007; see also Dos Santos, 2006). The reason is that the system of difference equations and accounting identities that constitutes the SFCM (and that is used for computer simulations) is explicitly derived from a complete set of sectoral balancesheets. Yet, this preliminary procedure, allowing SFCM authors to avoid any accounting black hole, can be extended to every formal macroeconomic model, no matter what its theoretical leaning is.
from investment (be it ‘financial’ or ‘productive’, as in the case of corporations), does not entail any future return, even in the long-run. Finally, sixth column of TABLE 3 shows flows of funds of the integrated financial sector which manages a number of different financial assets and whose net income is given by the algebraic sum of the relative financial revenues (as is shown in fifth column of TABLE 2).  

4. The Effect of ‘Capital-Asset Inflation’ on Profits

The somewhat paradoxical accounting structure of the ‘new’ monetary circuit depicted in FIG. 2 can be derived by TABLE 1, 2 and 3. In this regard, it is assumed that corporations express two different kinds of demand for bank loans: (i) the *stricto sensu* ‘initial finance’ which corporate sector as a whole needs to fund current production, $L_{fw}$, and which covers the wage-bill paid to workers ($W$, the cost of production); (ii) a further demand for credit, allowing each single firm to fund that part of productive investment which cannot be financed by internal sources, $L_{fk}$. The amount of the initial loan demanded (and obtained) by corporate sector is therefore:

$$L_{f}' = L_{fw} + L_{fk} = W + \lambda p \Delta K$$

(4.1)

where $\lambda$ is the (residual) share of investment funded by loans (i.e. a measure of the leverage ratio of the investment), $p$ is the unit value of the homogenous output (i.e. the price level), and $\Delta K$ is the current change in the existing stock of capital (i.e. the ‘productive’ investment in real terms).

At the end of the process of production, households can purchase consumer goods and/or save a share of their income, thereby increasing their stock of financial assets. If we assume that households can also borrow credit-money in order to fund their extra consumption (i.e. in order to achieve the ‘desired’ level of consumption), then their ‘augmented’ budget constraint is:

$$W + F_{fh} + F_b + i_{M(-1)}M_{h(-1)} + \Delta L_{h} - i_{L(-1)}L_{h(-1)} = C + \Delta V_h$$

(4.2)

where $F_{fh}$ is the flow of dividends from corporations to households, $F_b$ is the flow of dividends from financial sector to households, $i_M$ is the rate of return

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18 Notice that within the proposed framework: (i) every interest rate (and rate of return) is set at a level that remains fixed during a given accounting period; (ii) the corresponding interest-payments (and returns) are paid in the subsequent period.

19 According to Graziani, firms ‘need finance in order to set up and carry on any kind of production’. Hence, a bank loan ‘must cover the cost of total production and is not confined to financing specifically the production of capital goods’ (Graziani, 2003, p. 69). However, Graziani himself admits that, insofar as we abandon the conception of the corporate sector as one that is fully integrated and we consider a multiplicity of units, ‘in order to buy finished [capital] goods, firms need finance as much they need finance for paying the wage bill in the labour market’ (Graziani, 2003, p. 99). Finally, notice that $L_{fw}$ must be borrowed at the beginning of the period, whereas one should assume that $L_{fk}$ is demanded when production has been completed. We will leave aside this distinction hereafter, and we will keep on assuming that the whole loan is borrowed at the beginning of the period.
on bank deposits, $M_h$ is the stock of deposits held by households, $\Delta L_h$ is the flow of new loans to households, $i_L$ is the rate of interest on loans, $L_h$ is the stock of household loans, $C$ is the flow of consumption, and $\Delta V_h$ is the change in the stock of household wealth.

For the sake of simplicity, let us assume that: (i) bank loans to households can be expressed as a proportion, $\rho$, of the value of household stocks of assets (including capital gains, see the seventh row of TABLE 3); (ii) the interest rate on bank deposits is negligible; (iii) the integrated financial sector does not face any cost of production, and uses entirely any level of its retained earnings to purchase equities issued by corporations; (iv) banks and financial operators do not issue new shares; (v) hence, households divide their savings between corporate equities and deposits only. Given these premises, we have:

$$\Delta L_h = \rho \left( V_{h(-1)} + \Delta p_{E_f} E_{fb(-1)} \right)$$  \hspace{1cm} (4.3)

$$\Delta V_h = \Delta M_h + p_{E_f} \Delta E_{fb}$$  \hspace{1cm} (4.4)

$$p_{E_f} \Delta E_{fb} = \theta_b \left( i_L(-1) L(-1) + F_{fb} - i_{D(-1)} D_{(-1)} \right)$$  \hspace{1cm} (4.5)

$$\Delta E_{fN} = \Delta E_f (1 - \sigma)$$  \hspace{1cm} (4.6)

$$p_{E_f} \Delta E_{fN} = p_{E_f} \Delta E_{fb} + p_{E_f} \Delta E_{fb}$$

$$= (\Delta V_h - \Delta M_h) + \theta_b \left( i_L(-1) L(-1) + F_{fb} - i_{D(-1)} D_{(-1)} \right)$$  \hspace{1cm} (4.7)

where $\theta_b$ is the percentage of financial sector’s retained earnings, $\Delta E_{fN}$ is the quantity of newly issued corporate shares, net of any stock buyback, and $\sigma \geq 0$ is the corporate ratio of stock buyback to current issues. Variables $D$ and $i_D$ are worth of some more extended comment. $D$ is assumed to be the amount (in value) of securities issued by banks (through other financial intermediaries) on the basis of their lending to households, and $i_D$ is the relative rate of return. More precisely, we are hypothesising that banks can turn part of their ‘uses of funds’, i.e. loans to households, into an equivalent amount of ‘source of funds’, i.e. new securities which can be sold on the financial market. Since the above simplified description roughly corresponds to the effective scheme adopted by banks and financial operators to issue derivative financial products, hereafter $D$ will stand for ‘derivatives’. As for the meaning of the remaining symbols, we refer the reader to the glossary at the end of the paper.

Equation (4.7) shows that the demand for corporate equities arises from household saving (although it is likely that it happens in decreasing terms as the process of financialization takes off) and from net receipts of banks and

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As Zezza has argued, if we model a single monetary circuit, ‘the rationale for banks asking for interest payments is either to pay for their “cost of production” [...] or to distribute profits to bank owners, or to cumulate wealth, and since we can rule out that banks cumulate wealth in the form of their own deposits, we can safely assume that any level of undistributed profits obtained by the banking sector is used entirely to purchase equities’ (Zezza, 2012, p. 6; see also Zezza, 2004).
financial operators. Notice that if corporations decide to use their retained earnings in order to repurchase part of the issued capital stock from households and financial-banking sector, then the current net change that is described by the left-hand term of (4.6) may become negative – this will be so if \( \sigma \geq 1 \). In this case, households and financial sector can *spend* the resulting additional flow of credit-money only for consumption. Consequently, even in the presence of share re-purchase, there is only one circumstance which can produce a net loss of liquidity for corporate sector as a whole: the decision of the other sectors to save a percentage of their income in the form of cash balances (i.e. bank deposits, in this simplified model). Finally, if we divide (4.7) by \( \Delta E_{fN} \) (and then substitute, using (4.6), for \( \Delta E_{fN} \)), we obtain:

\[
p_{Ef} = \frac{\Delta V_h - \Delta M_h}{\Delta E_f (1 - \sigma)} + \theta_b \left( i_{L(-1)} L_{-1} + F_{f_b} - i_{D(-1)} D_{-1} \right)
\]

which is a positive function of both the retained earnings of financial sector and the buy-back of corporate shares.

From the second column of Table 2 we can derive the macroeconomic equation of corporate profits, which roughly corresponds to the well-known Kaleckian aggregate identity between capitalists’ incomes and capitalists’ expenditures (see Kalecki, 1971):

\[
P_f = p \Delta K + C - W - i_{L(-1)} L_{f(-1)} + i_{D(-1)} D_{-1}
\]

It deserves to be noted that the rate of return on derivatives is directly linked to the rate of interest on household debt. More precisely, units of integrated financial sector issue bonds subscribed by corporations which are looking for higher returns on their internal capital. This process allows banking system to ‘monetize’ a percentage (call it \( \alpha \)) of its credit with households without waiting until the maturity-date. However, in order to do so, financial-banking sector needs to pay interest on the issued bonds, whose rate of return must be higher than the rate on deposits and lower than (or equal to) the rate on loans to households (\( i_a < i_l \leq i_e \)).

Besides, from (4.2) and (4.7’) we obtain the following identities:

\[
C = W + F_{fh} + F_b + \Delta L_h - i_{L(-1)} L_{h(-1)} - \Delta V_h
\]

\[
p_{Ef} \Delta E_{fN} = \theta_b \left( i_{L(-1)} L_{-1} + F_{f_b} - i_{D(-1)} D_{-1} \right) + \left( \Delta V_h - \Delta M_h \right)
\]

Now, let us consider two different cases. **Case 1.** We assume initially that: (i) the productive investment is entirely financed by the issuing of new equities (so that \( p \Delta K = p_{Ef} \Delta E_{fN} \)); (ii) both corporations and financial-banking sector do not distribute dividends (so that \( F_{fh} = F_{f_b} = F_b = 0 \) and \( \theta_f = \theta_b = 1 \)).

\[21\] Notice that, in this case, the reason for purchasing equities is the wish to realize capital gains.
(iii) the rate of return on derivatives is negligible \((i_D = 0)\). Using (4.9) and (4.10) into (4.8), we get:

\[
P_f = \Delta L_h - \Delta M_h
\]

(4.11)

and hence:

\[
\Delta L_h > \Delta M_h \rightarrow P_f > 0
\]

(4.12)

Receipts from sales (made by corporate sector as a whole) are enough to pay back what the corporations have borrowed (i.e. principal plus interest) and to provide a positive net money profit, if the amount of loans to households is larger than the amount of deposits that households (decide to) hold. The conclusion is that non-financial corporations (considered as a wholly integrated sector) realize money profits if households become net debtors with the banking sector (and, hence, firms result to be net creditors).

**Case 2.** Let us suppose that: (i) the productive investment of corporations could be debt-financed; (ii) the rate of return on derivatives is positive, allowing corporations to realize financial gains. If we keep on assuming that neither corporate sector nor financial sector distribute dividends, then the amount of money profits of the corporate sector as a whole becomes:

\[
P_f = \left( \Delta L_h + L_{f(k)} + i_{D(-1)}D_{(-1)} \right) - \Delta M_h
\]

(4.13)

and, remembering (4.3), we obtain:

\[
P_f = \rho \left( 1 + \alpha i_L(i_{(-1)}) \right) \left( V_{h_{(-1)}} + \Delta p_E E_{f(h_{(-1)})} \right) + \lambda_f p \Delta K - \Delta M_h
\]

(4.13')

And hence:

\[
\rho \left( 1 + \alpha i_L(i_{(-1)}) \right) \left( V_{h_{(-1)}} + \Delta p_E E_{f(h_{(-1)})} \right) + \lambda_f p \Delta K > \Delta M_h \Rightarrow P_f > 0
\]

(4.14)

where \(\alpha\) is the percentage of loans to household sector which have been turned into derivatives (i.e. which have been ‘securitized’).22 Once again, we see that the higher the level of productive investment and the higher will be the net money profit realized by the corporate sector, according to the Kalecki’s law. Notice, however, that the profitability of the corporate sector is now positively affected also by both the level of the receipts from the ‘investment’ in financial assets (i.e. the return on derivatives, in this simplified model) and the household wealth, including capital gains realized by households on the equity market. More precisely, the inflation in the price of equities has two positive effects: first, it increases the amount of consumer credit and hence sustains corporate profits from sales; second, (part of) the interest accruing to the debt of households is a financial gain for the corporate sector. Notice also that, since inflation in the price of capital assets allows each individual corporation

---

22 So that we have: \(i_D D = a i_L \Delta L_D\).
to replace its borrowing by the equity financing, the ‘capital-asset inflation’
could reduce the monetary cost of such financing. Nonetheless, if we admit
that banks and financial operators spend all of their receipts, then interest-
payments on loans are never a ‘real’ cost for the corporate sector, because they
are doomed to flow back to it in the form of higher consumption and/or higher
equity-financing. This is the reason why interests accruing on bank loans to
corporate sector do not appear in the equation (4.13’).23

5. Financialisation, Prices and the Distribution of Income

As the most part of heterodox scholars, ‘circuitistes’ reject the neoclassical
theory (both the early ‘marginalist’ one and its subsequent improvements) of
prices, distribution and employment. In its stead, they adopt a formulation
which is very close to the post-Keynesian approach developed by Nicholas
Kaldor, Joan Robinson and – although with some differences – by Michał
Kalecki. Following Graziani (2003), the first step is to determine the
equilibrium price level which results from the equality between the aggregate
demand and the aggregate supply of goods. This latter is set in real terms by
autonomous decisions taken by corporate sector about the level and the
composition of the current production.24 In algebraic terms, the total monetary
value of the aggregate supply is:

$$ AS = p \pi N $$ (5.1)

where $p$ is the (unknown) price of a unit of output, $\pi$ is the average output per
worker (i.e. a measure of the labour productivity) and $N$ is the employment
level.

From the first column of Table 2 we can derive the aggregate demand for
consumption of households within our artificial economy. Adding the demand
for investment of non-financial corporations, we get:

23 Herein lays a possible difference with respect to the traditional monetary circuit analysis.
For Graziani (2003) while interest paid on securities is never a real cost to corporations (apart
from a possible ‘income effect’), interest paid on bank loans represents a real subtraction from
corporate profits. However, the adoption of a fully coherent macroeconomic approach allows
us to show that: (i) corporate sector as a whole can, theoretically, always realize its-own
autonomous investment plans, and hence the deriving net profits, given the scale of intended
production; (ii) financial-banking sector can always successfully compete with households in
the ‘commodity’ market by settling the rates of return on deposits and loans. Thus, bank
interest should be regarded as a subtraction from household real income, rather than from the
corporate one. Nevertheless, for the sake of simplicity, in the rest of the paper we will keep on
assuming that banks use the entirety of they retained earnings to purchase equities.

24 Observe that if one considers $n$ firms (or sectors) producing $n$ different goods (with $n \geq 2$),
then the hypothesis that the supply is given in real terms becomes inconsistent with the
hypothesis of the tendential uniformity of the profit rates (see Lunghini and Bianchi, 2004; see
also Brancaccio, 2008). However, the adoption of a totally aggregated approach, dealing with
a single homogeneous good, a single price and a single rate of profit, allows us to disregard
this problem (to a first approximation, at least).
Notice, however, that: (i) the monetary wage-bill is the product of the (average) wage paid to each worker, \( w \), and the level of employment, \( N \); (ii) both household flow of financial incomes and household saving can be regarded as a percentage of the wage-bill; (iii) the productive investment of corporations is anything but a percentage, \( k \), of the produced output\(^{25}\). Hence, the equation (7.2) can be re-written as:

\[
AD = wN(1 + f_h + l_h - s_h) + pk\pi N
\]

(5.2')

where \( f_h \) is the percentage of net financial incomes and \( l_h \) is the percentage of bank loans granted to households, both percentages being related to the wage-bill. As usual, \( s_h \) is the (both average and marginal) propensity of households to save.

As we have mentioned before, the equilibrium price-level is determined by the equality between aggregate demand and aggregate supply, which gives us\(^{26}\):

\[
p = \frac{w}{\pi} \cdot \frac{1 + f_h + l_h - s_h}{1 - k}
\]

(5.3)

The price of output depends on the unit cost of labour (the left-hand ratio) and on the profit margin of the business sector (embedded in the right-hand ratio)\(^{27}\). This latter, in turn, depends on: the average propensity of non-financial corporations to invest, \( k \); on the average propensity of households to save, \( s_h \); and, finally, on the value of \( f_h \) and \( l_h \) (i.e. the percentages of financial incomes and consumer-credit, respectively). Notice that if, by chance, the propensity to invest of corporations equals the ‘overall’ propensity to save of households (\( k = s_h - f_h - l_h \)), then the equilibrium unit price equals the unit cost of production (which, of course, implies that ‘entrepreneurial’ profits are absent). Nonetheless, this must be considered just an accidental event: no ‘spontaneous’ economic force is able to assure a zero-level for corporate profits within a circuit model.

\(^{25}\) In fact, ‘firms offer for sale the whole of the finished product. At the same time they enter the market as buyers having decided to buy the fraction \([k]\) of aggregate product’ (Graziani, 2003, p. 101).

\(^{26}\) It is possible to demonstrate that this method leads to results which are equivalent to the usual cost-plus pricing. Notice also that, unlike Graziani, we prefer to assume that the level of employment is determined by the amount of initial finance bargained by non-financial firms and banks (that is, the supply of credit-money is not perfectly horizontal), given the (average) nominal wage per worker that is negotiated by firms and workers \((N = L_{4}/w)\). Obviously, one may also assume that the amount of initial finance, in turn, is linked to the expected aggregate demand.

\(^{27}\) The profit rate of corporate sector, gross of monetary interests due to banks, is therefore:

\[
r = \frac{(1 + f_h + l_h - s_h)/(1 - k) - 1}{(f_h + l_h - s_h + k)/(1 - k)}
\]
Still, gross profits in real terms are equal to money gross profits \( P_{Gf} = p\Delta K + C - W + i_{D(-1)}D_{(-1)} \) divided by the price level. If, for the sake of simplicity, we assume that interests on derivatives are negligible, then we obtain:

\[
\frac{P_{Gf}}{p} = \frac{k + f_h + l_h - s_h}{1 + f_h + l_h - s_h} \pi N
\]  \hspace{1cm} (5.4)

As we would expect, on the basis of Kalecki’s lesson, if consumption equals the wage-bill \( (C = W \Rightarrow f_h + l_h - s_h = 0) \), then real profit before the deduction of interest payments is equal to real investment \( (P_{Gf}/p = k\pi N = \Delta K) \), and hence non-financial corporations earn exactly what they have spent on productive investment \( (P_{Gf} = pk\pi N = p\Delta K) \).

From the \((4.13')\) we can derive also net profits in real terms, \( RP_f = P_f/p \), which amount to:

\[
RP_f = \left[ \frac{\rho (1 + \alpha i_{L(-1)}) (V_{h(-1)} + \Delta P_{Ef} E_{ph(-1)} - \Delta M_h) - \Delta M_h}{w (1 + f_h + l_h - s_h)} \right] (1 - k) \pi + \lambda_f k\pi N
\]  \hspace{1cm} (5.5)

Equation (5.5) is represented in Fig. 3. Net profits of corporate sector depend on several factors, among which are the net worth of households (including capital gains on corporate shares) and the coefficient of ‘securitization’ (that is, \( \alpha \)). Notice, however, that the same possibility of realizing financial gains through the purchase of derivatives could affect negatively the propensity of corporations (as a whole) to undertake productive investment. More precisely, we can suppose that the greater the chance of realizing financial return (on derivatives), the lower is the benefit coming from the productive investment and hence from the production of goods. To the extent that this happens, the final effect on the net profit of the business sector is ambiguous, since the percentage \( \alpha \) (which is a proxy of the degree of financialisation) increases, but the scale of production \( (N, \text{in this simplified model}) \) could decrease, because of the smaller amount of productive investment.

As mentioned, the distribution of output between corporations and households is set autonomously by the decisions of the former with regard to the scale of production \( (N) \) and the composition \( (k) \) of output (given the labour productivity, \( \pi \)). This means that the purchasing power of households can be regarded as the residual term (or the dependent variable) to close the gap between the total output and the real profit realized by the corporate sector. Finally, notice that, once the process of inflation in the prices of capital-assets has been started, this could come to cause a change in the profile of customers of banks and, hence, a quickening in the change of the whole financial system. Indeed, (commercial) banks are driven to shift towards consumer-credit and/or other financial activities, insofar as the corporate sector is able to borrow funds and/or realize profits in the financial markets. The same increase in the autonomous consumption of households is another factor which allows corporations to increase their internal funds (in the form of retained profits) and to reduce their non-speculative demand for bank loans. The result is that banks as a whole face a trade-off: they can expand their business towards
households and financial activities only if they accept the risk of reducing their role in the financing of investment plans and current production of the corporate sector.\textsuperscript{28}

6. Beyond the Market-Based vs. Bank-Based Dichotomy

A logical corollary of the above considerations is the bringing into question of the relevance of the traditional ‘market-based vs. bank-based financial systems’ dichotomy, dominant in the economic thought of the last century.\textsuperscript{29} According to that approach, financial-based systems are those under which corporations raise the most part of funds they need by issuing new securities (especially shares), whereas bank-based systems are those under which corporations mainly borrow from banks. It follows that, in the former, the main source of financial instability is asset price bubbles, whereas, in the latter, the main source of financial instability is excess of lending. More in general, pros and cons related to each system have been the subject of a huge number of both theoretical debates and empirical analyses. Yet, seldom have their participants pointed out that the ‘bank based/market based’ dichotomy is implicitly linked to a specific (and very controversial) view of the nature of money, namely, that of the so-called ‘theory of loanable funds’ (TLF hereafter). According to the TLF, the role of financial systems is to allow net suppliers of funds, or ‘savers’ (typically households), to meet net demanders of funds, or ‘investors’ (typically corporations). Apart from the sources of instability, the only difference between market-based and bank-based systems is that the former realize the matching of supply and demand through the trading of securities, whereas in the latter saving takes the form of bank deposits and investment takes the form of demand for loans – with deposits being the basis/condition of loans. In both cases, the causality goes from the supply of money to the demand of money, and from aggregate saving to aggregate investment. Eventually, financial markets and banking sector play the same role, that is, to merely make the matching of supply and demand of loanable funds easier. The result is that the two institutions appear to be interchangeable: indeed they are perfect substitutes. The adoption of the TLF is, therefore, the hidden premise of the whole age-old discussion on the shift of advanced economies from the bank-based ideal-type to the market-based one, and of the linked debate on the more or less ‘desiderability’ of that historical trend.

By contrast, one of the basic features of the TMC is the conception of the capitalistic economies as hierarchical structures in which each macro-sector (households, corporations, banking system) and each market (consumer market, financial market) carry out a specific, and hence non-replaceable,

\textsuperscript{28} In this sense, an expansive monetary policy pursued by the central bank, via the reduction of the target interest rate, may have a ‘crowding out’ effect on the traditional banking activity – if not offset by a harsh regulation of financial business, at least.

\textsuperscript{29} Among recent works trying to investigate the standard dichotomy, as well as further typologies of financial systems, see Levine (2002).
function. From the TMC’s viewpoint, the market-based vs. bank-based typology is, thus, grounded on a two-fold theoretical misunderstanding. First, the banking sector is not, and has never been, the ‘cloak-room attendant’ of Cannan (1921) and the neoclassical economics, but a capitalistic institution whose function is to create sign-money (i.e. credit) ex-nihilo, without any need for previously stored savings (see arrow (1) in Fig. 1). Second, the logical macroeconomic function of financial markets is to allow corporations to recover the liquidity they inflated in the circuit at the beginning of the period, and not to fund corporate working. In the ‘original’ circuit at least, corporations cannot but borrow from banks in order to finance current production, i.e. the purchase of labour-force. During subsequent circuits, each single firm will need also to (partially) fund its own investment plan, i.e. the purchase of a portion of previous period output (see arrow (4) in Fig. 1). Notice that it is this second source of (bank) financing that allows corporate sector as a whole to ‘monetize’ real profits. In any case, the point is that corporate sector cannot turn to financial market until household saving is formed (financial markets are not banks!), namely, until the same corporate sector has started the process of production (by requiring an initial finance to banks) and distributed incomes to the participants to that process. Household saving (be it either voluntary or ‘forced’), in turn, will always match corporate investment, but only ex-post, via price level setting (see Graziani, 2003). This is the reason why TMC authors call the bank financing ‘the initial finance’, whereas the liquidity coming from the placing of newly-issued securities in the financial markets is usually denominated ‘the final finance’. The former is the necessary condition to start both the process of production and the circuit of payments among sectors; the latter determines the degree of final indebtedness (towards either banks or households) of corporations. Still, the former settles directly the scale of current production and hence the levels of employment and income (if one assumes that the supply of credit-money is not infinitely elastic, at least); the latter affects the scale of the (subsequent) circuits just indirectly (in the presence of credit-rationing linked to the corporate leverage ratio).

Yet, as has been argued in section 2, in the last three decades the process of financialisation has involved a remarkable change in the working of a number of financially-sophisticated economies, especially of the US. Hence, some questions arise: does the TMC still provide a fine representation of the effective working of today’s advanced economies? How is it possible to re-read the process of financialization in the light of the circuit approach? The basic thesis of this paper is that the TMC should not be considered a mere ‘empirical’ description of the ‘old’ Fordist manufacturing system (interpreted as a sort of ‘Golden Age’ of capitalism), as opposed to the new financially-sophisticated capitalism. Rather, the TMC must be regarded as the general social accounting of a monetary economy of production, be it either ‘traditional’ or ‘financialised’. In particular, the basic circuit framework is a logical meta-model such as the Tableau économique of François Quesnay and the Marxian reproduction schemes. Its function is to define the conditions of macro-monetary reproducibility of the system (i.e. the solvency requirements for corporate sector and hence for the economy as a whole), regardless of any individual behavioural function. In other words, the TMC defines the
necessary monetary relationships between sectors (corresponding to well-defined social classes) and markets. In this sense, recent twin-crises of US economy (in 2001 and 2008) have brought out an underground increasing conflict between the proper (that is, the *logical*) function of financial markets (depicted in Fig. 1) and the historical evolution they have had in the US (leading to the new scheme of Fig. 2)\(^30\). From this viewpoint, the question is not why did a double deep crisis explode during the 2000s in the US, but why did not it burst before. In our opinion, the reason lies in that the somewhat ‘paradoxical’ form of the monetary circuit depicted in Fig. 2 was temporary (although not indefinitely) sustainable. In fact, it represented, for two decades, a powerful counter-tendency to the stagnation tendencies affecting the US economy since the mid 1970s.

Notice that such a counter-tendency was anything but spontaneous: rather, it was politically managed and fed by the US authorities, especially after the mid of 1980s (see Bellofiore, 2011). The main instrument of intervention was the monetary policy; the main source of aggregate demand was household autonomous consumption fed by asset inflation (via bank credit); and the condition of sustainability of the whole system was the increasing market value of assets used as collaterals. Notice that, as mentioned, an increase in the percentage of household autonomous consumption, insofar as it increases the net profit of corporate sector, allows this latter to reduce its need for external funds. Analogously, increasing equity-prices allow corporations to replace bank borrowing with ‘cheaper’ long-term funds (and hence to reduce their leverage ratio on productive investment)\(^31\). Consequently, in the presence of inflation of equity prices, banks could be forced to shift further towards consumer-credit and/or change their nature into fee-related financial businesses. This happens because they no longer have the non-financial corporate sector as their main category of customer. In the US, starting from the mid-1980s, that had become a self-feeding process: the change in the banking model concurred to produce the inflation in the prices of (financial and then real-estate) assets which, in turn, concurred to modify the customer profile of banks. The very capacity to self-feeding could be considered, together with the stimuli of the Federal Reserve, the main factor allowing the paradoxical circuit depicted in Fig. 2 to last for a considerable period of time before it collapsed\(^32\).

\(^{30}\) A discussion about the peculiar antitrust legislation and the other historical reasons for the US ‘anomaly’ is out the aim of this contribution.

\(^{31}\) One might be tempted to think that capital-asset inflation cannot induce *macroeconomic* changes but can only produce *microeconomic* effects, since capital gains realized by some units (either households or corporations) offset capital losses suffered by other units. However, this is not true whenever: (i) there is asymmetric information, so that units realizing capital gains react more quickly than units suffering capital losses; (ii) capital gains and losses entail a redistribution of income among different sectors (for instance, from households to corporations and banks); (iii) bank loans are linked to the value of assets, allowing units to realize capital gains immediately.

\(^{32}\) For a description of the sequence leading to the crisis we refer the reader to the Appendix.
7. Concluding Remarks

In this paper, we have revisited the monetary circuit framework in the light of the central role taken, during the last decades, by financial markets in the US economy and in a number of other advanced economies. The result is a new, although somewhat ‘paradoxical’, circuit of payments in which bank lending is sustained by household debt, rather than by the corporate demand of finance, and in which the same household debt fuels the expansion of the financial markets, by virtue of growing corporate saving invested in financial assets. It was this interconnection between increasing household debt, increasing financial profits and progressive changes in the role of banks, the ‘artificial heart’ of the ‘new’ capitalism made in US of the 1990s-2000s, until the big crash of 2008 at least. Of course, the end of that ‘model’, and hence of the role of US households as buyers of last resort of world surpluses, will require re-thinking again the specific future ‘declension’ of the circuit of money payments among sectors and/or countries. In particular, recent sovereign debt crisis of several Eurozone’s members will require including explicitly the role of both government sector and foreign markets as further sources of liquidity. To this purpose, the traditional ‘market-based vs. bank-based systems’ dichotomy, linked to the old theory of loanable funds, should be recognized to be empirically useless and theoretically wrong. By contrast, the basic framework of the TMC still represents the best logical starting point of every specific analysis of the historical changes in the working of capitalist economies.

References


33 In particular, deficits of government sector financed with issues of legal money represent an additional source of funds for the private sector of the considered economy. The same goes for deficits of foreign markets, that is, for net export. To this regard, notice also that, in the Eurozone, the financial condition of countries marked by external surpluses may be likened to that of corporations depicted in FIG. 2, whereas the situation of deficit countries may be likened to that of household sector. In both cases, behind the appearance of sustainability, there are increasing imbalances between sectors and/or countries, which are doomed to lead to financial fragility and to a crisis.
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Schmitt, B. (1975) Théorie unitaire de la monnaie, nationale et international (Albeuve, Castella).
Seccareccia, M. (2010) Financialization and the transformation of commercial banking: understanding the recent Canadian experience before and during the international financial crisis, mimeo.
Figures

**Fig. 1.** The *logical* structure of the monetary circuit. The government sector and foreign sector are assumed away. It is also assumed that households do not desire to hoard bank deposits.

**Fig. 2.** The paradoxical form of the monetary circuit in the ‘new capitalism’. Arrow-lines show only the new ‘tendential’ links between integrated financial sector, corporations and households.
The relationship between real corporate profits and financialisation. On the one hand, the higher the coefficient of securitization, $\alpha$, the higher will be, ceteris paribus, the amount of corporate profits (from $RP_f'$ to $RP''_f$, in the picture). On the other hand, the process of financialisation may reduce the volume of the productive investment undertaken by firms ($I = \Delta K = k\pi N$), thereby bringing down the intercept of the profit function. The final result is therefore ambiguous (from $RP''_f$ to $RP''_f^*$, in the depicted case). Finally, notice that the slope of the profit function depends, in turn, on a number of different variables (embedded, for the sake of simplicity, in the scalar $z$). Among these are the rate of interest on bank loans, $i_L$, the household loans to assets ratio, $\rho$, the investment to output ratio, $k$, and further variables linked to household flow of incomes and stock of assets.
Appendix: the road to hell

The sequence which leads to financial fragility and to a crisis, within the circuit of payments depicted in Fig. 2, can be split into two different phases. Initially, the increases in financial asset prices and consumer credit may have a positive effect on the balance-sheet of the corporate sector, through the reduction in the total cost of financing for the same level of consumption. This is a self-feeding process: financial asset inflation fuels credit-based consumption which fuels saving of corporate sector which, in turn, fuels financial asset inflation. We may assume that the historical starting point of the described process is the long-run decrease in the rate of return on ‘productive’ investment, which leads corporations to use their funds to purchase financial assets. This very inflow of new funds sustains the quotations of assets in the financial markets. The very increasing value of assets allows households to recur to bank credit in order to feed their desired level of consumption, in spite of stagnating wages. In fact, this is what happened in the US during the 1990s and – although with some differences – during the up-swing of 2003-2007.

During the second phase of ‘financialisation’, this latter shows its negative face. First, insofar as it becomes profitable for over-capitalized corporations to allocate excess capital to financial assets in preference to engaging in ‘productive’ investment, this component of the demand is doomed to decrease. Second, financialisation may lead to a ‘over-indebtness’ of a number of corporations, because of their attempt to increase the rate of return on their own funds by using the leverage to purchase financial assets (according to the well-known scheme described in Minsky, 1975). Third, corporate buyback of shares comes to reduce the resilience of the sector considered as a whole,
because it increases the leverage ratio on (both financial and productive) investment. At the same time, both the increase in the price of assets and the growing financial fragility of economic units can lead to an increase in the effective rate of interest. Eventually, all these factors cannot but forcing indebted units to cut consumption and investment, therefore giving rise to the crisis.

A look at the Fig. 2 shows that, if the stock buyback is ‘internal’ to the corporate sector, then households (as a whole) cannot draw from the financial markets the liquidity that they need to pay off their bank debt. However, they can easily keep on renewing their bank debt, as the price of financial assets (and hence their wealth) keeps on increasing, because of the inflow of corporate saving. The same goes for the corporate purchases of financial assets from banks and financial operators. By contrast, insofar as corporations re-purchase their shares from households, these latter can pay off (part of) their bank debt, but at the price of ‘de-accumulating’ their stock of assets. Data seem to indicate that the two cases describe two different (subsequent) phases of the business cycle as well as describe the process of ‘financialization’ on the whole. In fact, on the one hand, the process of financialization of western economies (which started at the end of the 1970s and continued to take place during the 1980s) has been associated with a tendential fall in the proportion of (fixed) investment which is financed by new issues. On the other hand, the equities-to-investment ratio decreased during the upswings (mainly because of the stock-repurchase of the non-financial business sector) and increased after the crises, such as in the Wall Street crashes of 1987, 2000 and 2007 (see Ryoo, 2010; see also Passarella, 2012a).

As either the endogenous outcome of the pressure of demand for credit on a non-infinitely elastic supply (as claimed by Minsky, 1975) or the result of an autonomous decision – concerning the target rate of interest – taken by the central bank in order to hold inflation down (as claimed by ‘horizontalist’ authors). On this point, we refer the reader also to Passarella, 2010.

For a complete derivative equation model derived from the accounting framework presented here, we refer the reader to Passarella (2012b).
### Tables and Key to Symbols

#### TABLE 1. Nominal balance-sheets of each economic sector in a pure ‘sign-money’ capitalist economy

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<tbody>
<tr>
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<td>[−M]</td>
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<td>0</td>
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<tr>
<td>2. Loans</td>
<td>−L</td>
<td>−L</td>
<td>+L</td>
<td>0</td>
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<td>3. Capital</td>
<td>+p ∙ K</td>
<td>−p ∙ K</td>
<td>+p ∙ K</td>
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<tr>
<td>4. Derivatives</td>
<td>+D</td>
<td>−D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Equities</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Net worth (Totals)</td>
<td>VH</td>
<td>Vf</td>
<td>Vb</td>
<td>p ∙ K</td>
</tr>
</tbody>
</table>

Notes: A ‘+’ before a magnitude denotes an asset, whereas ‘−’ denotes a liability; Lh is the total amount of bank loans borrowed by households in order to fund their extra-consumption.

#### TABLE 2. Nominal transactions among economic sectors

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<tbody>
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<td></td>
<td>Current</td>
<td>Capital</td>
<td>Current</td>
<td>Capital</td>
</tr>
<tr>
<td>1. Consumption</td>
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<td></td>
<td>+C</td>
<td></td>
</tr>
<tr>
<td>2. Investment</td>
<td>−W</td>
<td></td>
<td>+p ∙ ΔK</td>
<td>[− p ∙ ΔK]</td>
</tr>
<tr>
<td>3. Wages</td>
<td>+W</td>
<td></td>
<td>−W</td>
<td></td>
</tr>
<tr>
<td>4. Consumer credit</td>
<td>+ΔLh</td>
<td>[−ΔLh]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Interest on loans</td>
<td>−iLh ∙ Lh - iLh ∙ Lf</td>
<td>−iLh ∙ Lh - iLh ∙ Lf</td>
<td>+iLh ∙ Lh - iLh ∙ Lf</td>
<td>0</td>
</tr>
<tr>
<td>6. Interest on deposits</td>
<td>+iMh ∙ Mh + iMf ∙ Mf</td>
<td>[+iMh ∙ Mh + iMf ∙ Mf]</td>
<td>−iMh ∙ Mh - iMf ∙ Mf</td>
<td>0</td>
</tr>
<tr>
<td>7. Return on derivatives</td>
<td>+iDh ∙ Dh</td>
<td>+iDh ∙ Dh</td>
<td>[−iDh ∙ Dh]</td>
<td>0</td>
</tr>
<tr>
<td>8. Dividends (distrib. profits)</td>
<td>+Fh + Fh</td>
<td>-Fj</td>
<td>+Fh - Fj</td>
<td>0</td>
</tr>
<tr>
<td>9. Current saving (Totals)</td>
<td>S0</td>
<td>0</td>
<td>Fd</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes: A ‘+’ before a magnitude denotes a receipt, whereas ‘−’ denotes a payment; it is assumed that there is neither a government sector nor a foreign sector; both inventory stocks and capital depreciation are assumed to be negligible.
TABLE 3. Flow of funds at current prices: uses and sources

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Capital</td>
<td>Current</td>
<td>Capital</td>
</tr>
<tr>
<td>1. Deposits</td>
<td>$+\Delta M_h$</td>
<td>$-\Delta L_h$</td>
<td>$-\Delta M_f$</td>
<td>$+\Delta L_f$</td>
</tr>
<tr>
<td>2. Loans</td>
<td>$-\Delta L_h$</td>
<td></td>
<td>$-\Delta L_f$</td>
<td>$+\Delta L_f$</td>
</tr>
<tr>
<td>3. Derivatives</td>
<td>$+\Delta D$</td>
<td></td>
<td>$+\Delta D_f$</td>
<td></td>
</tr>
<tr>
<td>4. Capital goods</td>
<td>$+\Delta K$</td>
<td>$+\Delta K_f$</td>
<td></td>
<td>$+\Delta K_f$</td>
</tr>
<tr>
<td>5. Equities</td>
<td>$+p_{D_f} \cdot \Delta E_{f} + p_{D} \cdot \Delta E_{h}$</td>
<td>$-p_{D_f} \cdot \Delta E_{f}$</td>
<td>$+p_{D_f} \cdot \Delta E_{f} + p_{D} \cdot \Delta E_{h}$</td>
<td>0</td>
</tr>
<tr>
<td>6. Net capital trans.</td>
<td>$S_a$</td>
<td>$F_{ef}$</td>
<td>$0$</td>
<td>$F_{eb}$</td>
</tr>
<tr>
<td>7. Net worth (acc. memo)</td>
<td>$S_a + \Delta p_{D_f} \cdot E_{f(0)} + \Delta p_{D_f} \cdot E_{f(1)}$</td>
<td>$F_{ef} - \Delta p_{D_f} \cdot E_{f(1)} + \Delta p \cdot K_{1}$</td>
<td>$F_{ef} - \Delta p_{D_f} \cdot E_{f(0)} + \Delta p_{D_f} \cdot E_{f(1)}$</td>
<td>$S_a + \Delta p \cdot K_{1}$</td>
</tr>
</tbody>
</table>

Notes: A ‘+’ before a magnitude denotes a use of funds, whereas ‘−’ denotes a source of funds; the total amount of deposits is always equal to total amount of loans; ex post total saving always equals total investment; changes in capital do not enter in the column totals (because they are considered in TABLE 3) and the same goes for loans to households; the difference between current saving (row 9 in TABLE 2) and net capital transactions (row 6 in TABLE 3) is always zero.

Glossary of symbols in Tables 1, 2 and 3

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D$</td>
<td>Derivatives</td>
</tr>
<tr>
<td>$C$</td>
<td>Total consumption (of households)</td>
</tr>
<tr>
<td>$M$</td>
<td>Deposits (total)</td>
</tr>
<tr>
<td>$M_h$</td>
<td>Deposits held by households</td>
</tr>
<tr>
<td>$M_f$</td>
<td>Deposits held by corporations</td>
</tr>
<tr>
<td>$E_p$</td>
<td>Equities issued by financial sector (and purchased by households)</td>
</tr>
<tr>
<td>$E_{f}$</td>
<td>Equities issued by corporations (total)</td>
</tr>
<tr>
<td>$E_{fN}$</td>
<td>Equities issued by corporations net of share repurchase</td>
</tr>
<tr>
<td>$E_{p}$</td>
<td>Corporate equities purchased by financial sector</td>
</tr>
<tr>
<td>$E_{p}$</td>
<td>Corporate equities purchased by households</td>
</tr>
<tr>
<td>$F_p$</td>
<td>Financial sector’s dividends (distributed to households)</td>
</tr>
<tr>
<td>$F_{f}$</td>
<td>Corporate dividends (total)</td>
</tr>
<tr>
<td>$F_{f}$</td>
<td>Corporate dividends distributed to financial sector</td>
</tr>
<tr>
<td>$F_{f}$</td>
<td>Corporate dividends distributed to households</td>
</tr>
<tr>
<td>$F_{ef}$</td>
<td>Retained earnings of financial sector ($= \theta_{M_f}$)</td>
</tr>
<tr>
<td>$F_{eb}$</td>
<td>Retained earnings of corporations ($= \theta_{P}$)</td>
</tr>
<tr>
<td>$i_D$</td>
<td>Rate of return on derivatives</td>
</tr>
<tr>
<td>$i_M$</td>
<td>Rate of return on deposits</td>
</tr>
<tr>
<td>$i_L$</td>
<td>Rate of interest on loans</td>
</tr>
<tr>
<td>$K$</td>
<td>Quantity of capital</td>
</tr>
<tr>
<td>$L$</td>
<td>Total amount of bank loans</td>
</tr>
<tr>
<td>$E_f$</td>
<td>Loans to corporations</td>
</tr>
<tr>
<td>$E_s$</td>
<td>Loans to households (consumer credit)</td>
</tr>
<tr>
<td>$p$</td>
<td>Price of a unit of output (or price level)</td>
</tr>
<tr>
<td>$p_{va}$</td>
<td>Price of equities issued by financial sector</td>
</tr>
<tr>
<td>$p_{va}$</td>
<td>Price of equities issued by corporations</td>
</tr>
<tr>
<td>$V_{f}$</td>
<td>Net worth of financial sector</td>
</tr>
<tr>
<td>$V_{f}$</td>
<td>Net worth of corporations</td>
</tr>
<tr>
<td>$V_{f}$</td>
<td>Net worth of households</td>
</tr>
<tr>
<td>$W$</td>
<td>Total wage-bill</td>
</tr>
</tbody>
</table>