On the closure of the monetary circuit

cavalieri, duccio

University of Florence

December 2003

Benevento Conference on the monetary theory of production
(in honour of Augusto Graziani)
December 5-6, 2003 - III Session

ON THE CLOSURE OF THE MONETARY CIRCUIT

A provisional draft for a discussion of Messori and Zazzaro's paper on
"The Analysis of the Single Period:
Financial Markets, Firms' Failures and the Closure of the Monetary Circuit"

by **Duccio Cavalieri**
(University of Florence)

The equilibrium framework of circuit theories.

1. The theory of the monetary circuit has ancient origins, which go back to the British Banking School of Thomas Tooke and John Fullarton and to the doctrine of real bills. The approach was later revived by neoclassical economists, such as Wicksell, Fisher, Robertson, Lindhal and Schumpeter, who studied the circuit of money as part of the more general circular flow of income and stressed the role of bank credit, but underestimated in some degree the importance of money as a financial asset (fully recognised by Keynes).

In the last few decades, new circuit theories based on an endogenous supply of money consisting in transferable credit rights have been proposed, in a number of distinct versions. Some of them have been put forward by post-Keynesian authors, as Nicholas Kaldor and Basil Mooore. Some others by non-neoclassical French economists, as Bernard Schmitt, Alain Parguez, François Poulon, and by Augusto Graziani in this country.

The ultimate aim of these economists was the construction of a macroeconomic model of the working of a capitalist system, characterized by an essential role of credit money, by a close integration of the monetary and the real dimensions and by a complete independence from any market theory of value (though not necessarily from a different theory of value). It was intended to provide a reasonable macro-foundation of economic theory.

Unfortunately, this ambitious task has been pursued by circuitists in a traditional systemic equilibrium framework of social accounting, where all subjective expectations are realized and the future is certain. On the equilibrium character and the alleged "heterodoxy" of this theoretical approach, see Cavalieri, 1994, 1996 (and, more recently, Zazzaro, 2003).

2. Basic assumptions of the theory of the monetary circuit (Graziani, 1988, 1994) are the following:

a) Money is an interest-bearing claim devoid of any intrinsic value, created on demand by the bank system and used as a measure of value and to make payments. It is a convenient medium of exchange, which performs important allocative and distributive functions; not a convenient financial asset. The creation of money is regarded as a precondition for the production of goods.

b) Capitalist production presupposes, on a logical ground, the existence of labour, of unproduced material means of production and of an "initial" or *ex ante* finance, required to pay the wage-bill, provided by credit money, an immaterial, non-observable, ephemeral flow-variable, endogenously created and destroyed by the bank system, through scriptural notes. It also implies the presence of three different categories of economic agents: firms, banks and wage earners.

c) Output and employment levels are determined by the joint decisions of firms and banks, affected by the rate of interest. By a behavioural assumption, credit is confined to firms or

businessmen (capitalists), who use it to pay wages (short-term credit) and to make investments (long-term credit). Wage earners have no access to personal loans (a "classist" rule) and do not hold liquid balances.

d) The money market is always in equilibrium, because any demand for credit money is assumed to give origin to an endogenous supply of equal amount (a sort of "Say's Law", which prevents any excess demand for money and any excess supply of goods). The causal order goes from the demand for credit money, made by the firms, to its supply, provided in unlimited amount by banks (in the institutional framework of a "free banking" system), at the current interest rate, unilaterally determined by banks.

e) For the banking system as a whole, quite independently of its historical stage of development, causality goes from bank credit to deposits; not in the other way round (banks are not a "cloak-room").

f) Both firms and families get income flows and make final expenditures. Firms, whose technical function is to produce and which are not allowed to selfinance themselves, use the credit obtained by the banks as a wage fund, to buy labour services from the families, in an amount which depends on the wage rate and the employment level. Families use their wage earnings (the wages paid by the firms to their workers and those paid by the banks to their employees) to buy both the outputs produced and the debt titles and equities issued by the firms.

g) With this "final finance", the firms must ultimately be able to repay the banks, so as "to close" the monetary circuit. Credit money will therefore last only for a single period.

3. In such "pure credit economy", with no foreign exchange and no government deficit, the money supply would necessarily have an endogenous nature and could not be controlled by the monetary authority.

4. The supply of money in the circuit framework, being of strictly endogenous nature, would not be a possible choice parameter for the monetary authority. The monetary policy would therefore loose much of its importance.

Some critical remarks addressed to monetary circuit theories.

5. Several critiques of the monetary circuit approach have been advanced in the literature. Some of them – very few indeed – have come from neoclassical and monetarist economists, who believe in in the quantitative theory of money, in the exogenous nature of money supply, in the neutrality of money in the long period, in an intrinsic ability of market forces to ensure price stability, in a general accessibility to bank credit and in the logical priority of bank deposits with respect to bank loans.

These critiques did not throw doubts upon the equilibrium framework of circuit theories. They were however rejected by circuitists, as ideologically biased descriptions of the working of a capitalist economy.

6. Other critiques have a different nature, as they reject the idea of a systemic equilibrium, implicit in the circuit approach. That is the basic assumption that all means of payment created in each period are completely destroyed at the end of the same period (the equilibrium constraint being the scriptural withdrawal of the credit money previously created).

Broadly speaking, this point of view is shared by economists of various theoretical tendencies – as Messori, Arena, De Vroey, Benetti and Cartelier, and myself – who accept the Marxian concept of the circuit of capital, don't believe in the neutrality of money and recognize the fundamental role of credit expansion in a dynamic economy.

These critiques could not be dismissed by the circuitists as "external", or aprioristic, because they came from economic theorists who had not established their reputation working inside the mainstream theoretical framework of the neoclassical synthesis. And that, from an ideological point of view, could be placed somewhere between the Marxian, the Keynesian and the Schumpeterian tradition.

7. Capitalist production obviously requires an initial stock of money (the purchasing power capitalists need to buy labour power). But there is no initial stock of money in a credit economy. The circuit approach assigns a central position in a monetary economy to the banking system and conceives both the demand and the supply of money as flow variables. This theoretical framework is in sharp contrast with that used in the Keynesian analysis of money, which runs in terms of both flows (of income and payments) and stocks (money balances held for precautionary or speculative motives). Circuitism is in no way a particular type of Keynesism.

Examples of a correct stock-flow approach are provided by the "revolving fund" nature of the finance needed by new investments (the Keynesian "finance motive for holding money", misinterpreted by Graziani as a fund for financing production activities); or by the Godley-Cripps model of the monetary economy, in which expenditure flows and stocks of money and other financial assets kept as a store of value coexist and are together required to satisfy some accounting macroeconomic identities, such as the equality of total income and total expenditure, or of total demand and total supply of money.

In a circuit approach aimed at describing a circular process of creation, utilization and destruction of money, the possibility of using a stock-flow monetary framework – implying that every flow comes from somewhere and goes somewhere – thus appears problematic. But out of this kind of model, there is no place for a stock demand for money, made for precautionary or speculative purposes.

8. Validity of Say's Law is usually assumed by circuit theorists, as in neoclassical equilibrium models (contrary to Marx's and Keynes' opinions). Money is regarded as a simple means of payment, devoid of direct utility. There are no liquid balances held as a store of value in the presence of uncertainty and no real balance effects. The equality of savings and investments at a macroeconomic level is taken for granted, as in neoclassical equilibrium models. The fact that the financing of investments requires money, not savings, is ignored.

Both credit rationing and a liquidity trap are precluded. At any level of the interest rate, the supply of credit adapts completely to the demand of credit (therefore the financement of investments is no longer a problem for the firms) and economic agents have no reason to hold money as a convenient asset.

Moreover, in a circuit model there is no room for consumer sovereignty. The demand for goods is supply-induced and independent of the price level fixed by the firms by adding a mark-up to their average costs (an assumption which makes the integration of money in the theory of production and in a general theory of value a difficult task).

9. There is an intrinsic logic in a circuit, which cannot be ignored. A circuit is a closed loop. It has no initial and no final point. It must allow for a roundabout moving of a circular flow. Closure should therefore be regarded as a necessary preliminary assumption of any circuit theory. Not as a simple condition of equilibrium (see Graziani, 1994, 1996). This point is recognized by the circuitists of the Dijon school (Schmitt, Sadigh) and by Messori and Zazzaro in their paper.

In a sequential dynamic equilibrium framework, the closure of the monetary circuit cannot be disregarded. It has to be ensured stage by stage. Otherwise there would not be a circuit, but a sequence of connected open loops, each of which would end in disequilibrium, with an increasing indebtment of the firms towards the banks. A very dangerous state of affairs which would give rise to what Harold Minsky has described as an unstable speculative financial position, of explosive

nature, implying continuous new indebtment by the firms, to cover their previously accumulated debt. Under such conditions of structural disequilibrium, the dynamics of firms indebtment would be completely out of control.

10. The result would be the "production of debts by means of debts", an unstable financial situation implying a continuous insolvence by the firms, regarded as an integrated sector, with respect to the bank system. With possible failures of single firms and single banks (the case studied by Messori and Zazzaro), but no final breakdown of the economy.

We would thus be in the presence of an abnormal and illogical structural disequilibrium situation, where some firms could make a profit in money form, and so get a possible source for self-financing and interest payment, if at the same time some other firms were suffering a loss; but where the firms as a whole could neither make profits nor pay interests to the banks. Therefore either the firms or the banks, though not both of them, could fulfil their expectations.

Some attention has thus to be paid also to microeconomic monetary circuits: to their opening, their closing and their interrelationships. Circuitists have paid some attention to the opening of the monetary circuit. But they have somewhat disregarded its closing and the intermediate phase of the circulation of money. By so doing, they seem to have undervalued the importance of some behavioural parameters, as the velocity of circulation of money.

11. Three serious logical difficulties concerning the closure of the monetary circuit arise in such context. The first one has important accounting implications. It is related to the need of each firm and of the firms as a whole to raise profits and pay interests and dividends in money (not in nature, as in a barter economy). This implies for a circuit theory a serious analytical difficulty, as for this purpose firms must dispose of an amount of money greater than that created by the banks in the form of credit money. Government money, the primary component of the supply of money, is thus needed, in addition to credit money. This fact confers to the total supply of money a mixed nature, partly exogenous and partly endogenous. The same is true for the supply of monetary base.

As noticed by Messori (1984) and now recalled by Messori and Zazzaro, in the absence of an exogenous supply of money, the total amount of money that firms may hope to recover by selling their products is at most equal to the amount to which they have been financed by the banks.

12. Credit is a particular exchange relationship, implying a deferred payment. It should not be confused with credit money, which is a particular means of payment). The amount of credit cannot be expanded indefinitely. It is constrained by bank assets, and more specifically by bank reserves, which are a function of bank deposits, and should be repaid.

In the real world only short-term credit has to be repaid by the firms at the end of each single period. But it may be renewed at its terminal date – for its previous amount, plus past interests – even in the absence of newly created means of payments. Long-term credit is usually repaid over several periods, with the yields of investments. To avoid a crisis of the whole system, a sequential circuit model extending over an infinite time horizon, but suitable to be closed in each single period as regards its short-term financing, would thus be needed (as pointed out by Messori, 1988). Under such conditions, the short-term debt of the firms would be bearable; but their long-term debt would not.

To make the payment of interests possible at a macroeconomic level, the presence in the economy of another source of money supply, of exogenous nature (fiat money issued by the government, to finance a budget deficit), must be postulated. Any other assumption should be regarded as an *ad hoc*, unjustified, analytical hypothesis.

13. A second logical difficulty of the monetary circuit approach is that, having no theory of the determination of relative values, such an approach is unable to explain the origin of a surplus value in a capitalistic system. It may show how profit is spent, once formed. But it cannot explain how

and why profit comes into existence, how it is physically appropriated and how it is realized in the market in money terms. In a circuit model of the economy, profit is necessarily bound to be zero in money terms.

14. A third logical difficulty for the circuit approach arises if one is willing to allow for the existence in the pure credit system of a central bank, which will issue money, will make credit operations with commercial banks and will act in their regards as a lender of last resort (a function which in the real world central banks usually perform under an overdraft system, but that they are not obliged to accomplish in an asset-based financial system, where causality is reversed).

Government, or fiat, money – when present in the circuit model (as denied by Schmitt, but realistically allowed by Graziani) – is assigned a purely supplementing role, being regarded as not required for a regular working of the system. Its supply cannot therefore be used as a control variable. This is hardly acceptable. The amount of government money limits the supply of credit money. The whole credit system stands on the supply of government money. The circuit of credit money is only a part of the broader circuit of money, which is itself a part of the more general circuit of income.

What is in question, here, is the degree of realism of the model. Not the degree of desirability which an analyst is prepared to recognize to the present institutional asset of the world (as wrongly asserted by Figuera, 2000, p. 151).

15. In the past, I expressed the opinion that credit money could not be conveniently held as a liquid store of value, an inactive balance suited to transfer purchasing power over time (a cause of unemployment). That statement has been contended by Graziani (1996), who remarked that if an amount of transferable credit money is not directly borrowed from a bank, but is received in payment (being a triangular relationship), it may be kept for some time by the recipient as a liquid store of wealth, instead of being spent. This is certainly possible, though not convenient. But hoarding credit money as a reserve would not be consistent with the equilibrium state of the system, which implies the closure of the circuit. Say's Law would break down.

16. How fruitful is the circuit approach? In my opinion, a pure credit system of strictly endogenous nature, such as that implied by the circuit theory in its highly stylized canonical form, has little cognitive and heuristic value. It provides a simple didactic device, suited at best for a first approximation analysis of the working of a monetary economy, in the presence of a structurally feeble capital market and of a banking system prepared to finance indefinetely the growth of the firms.

Missing elements: public sector, capital market, financial circulation and speculative activity.

17. Another important issue should be discussed. According to the circuit theory, the institutional role of the central bank will have to be limited, if the supposed strict endogeneity of money has to be preserved. The monetary authority would therefore be deprived of her traditional power of control over the credit system. A power of control which, if actually exerced, would confer to the total money supply an exogenous nature.

With a purely endogenous supply of money, a restrictive monetary policy would be nonsensical. Thus, under such conditions, a less important economic role is assigned to the central bank.

18. Both government and credit money are money in a narrow sense of the word. But whereas government money is always a necessary component of the monetary base, credit money is not. This fact makes a substantial difference between these types of money.

In the real world no payment system is able to work without a basis of government money, suited to provide a necessary upper limit to credit expansion, which could otherwise be infinite. In the absence of such a limit and in the presence of an increasing demand and an accomodating supply, credit expansion could go on indefinitely and firms, being not subject to a budgetary constraint, would be in the position to finance any desired amount of expenditure.

19. Credit money cannot be created *ex nihilo*. It presupposes the existence of government money. In the real world bank lending is subject to rationing (by bank reserves and bank assets).

Credit rationing by bank reserves – an important feature of reality, distinct from simple credit constraints self-imposed by the banks – is ignored by circuitists. Yet it changes completely the analytical framework of the problem we are considering. Because in the presence of credit rationing, the amount of credit money is supply determined, not demand determined.

20. Unconvertible (non-redeemable) government money is not credit money. It does not represent a credit, an interest-bearing claim of the holder and a liability of either the central bank or the Treasury. It carries no interest yield. Thus the alleged identity of functions between government money (cash, banknotes) and credit money (bank deposits) is far from being a complete one.

We can certainly say that all money supply comes from the bank system. But we cannot say that all money supply has the nature of credit money. Or that it is "credit driven and demand determined" and may be represented with an horizontal line in the price-quantity space.

21. In our times, the nominal supply of money has an eterogeneous nature. Only a part of it – its credit component – is certainly endogenous (demand determined). Government money is partly endogenous (inside money) and partly exogenous (outside money, created for the need of financing a public deficit). The real supply of money (the nominal supply divided by the price level), on the contrary, is always endogenous.

Being unconvertible, government money issued by the central bank should no longer be considered as credit money, involving an obligation of the issuer (or an obligation of the Treasury). It has an exogenous nature. It is not a debt of the central bank. No interest is paid on it.

22. In the real world, financial options are usually available. Families save part of their incomes and choose between leaving their savings inactive or investing them in long-term bonds, corporate equities, treasury bills or bank deposits. Firms which need additional liquid funds are in the position to choose between looking for bank credit and seeking long-term finance in the capital market. Commercial banks decide whether to finance themselves by collecting private savings or through the discount window of the central bank; and whether to invest in making loans to their customers or to buy financial assets. Deposits make loans and loans make deposits. This is the basic framework of the Keynesian analysis of the monetary theory of production.

In circuit theories all this is impossible. No distinction is made between the money market and the financial market. There is a banking sector, which is supposed capable of financing every level of firms' productive activity. Therefore there is not need of a financial sector (its role being reduced to an allocative one for existing liquid resources). A speculative activity in the bond market is thus impossible. We are supposed to be in a purely ideal indebtment or credit economy.

Under such unnaturally restrictive conditions, there can be no uninvested savings by the families and no selfinancing by the firms. Loans make deposits, bur deposits do not make loans. Investment decisions are assumed to be completely independent of financial market conditions. Banks do not borrow money and do not pay interests. Interests are paid only by the firms, on loans covering the cost of investment, to the bank system and to the bond holders.

23. To allow for a theoretical advancement of the circuit approach, the degree of complexity of this stylized model has to be considerably augmented. A capital market and a financial circulation must

be explicitely introduced into the monetary theory of production, with the purpose of supplementing credit institutions and the industrial circulation of money, which gives rise to current payments. But as soon as this is done, the unrealistic and analytically unsatisfactory assumption of a purely credit economy, in which firms can finance their productive activities only by bank credit of endogenous nature, breaks down. Full interaction of money, credit and finance must be admitted.

24. In a stock and flow model of the economy, the demand for money will find a satisfactory analytical explanation only within the framework of a general theory of portfolio choices, suitable to define the equilibrium of the whole capital account.

Functional interdependence of supply and demand for money should be recognized. And an analytical effort should be made to transform all the relations among single economic agents (firms, families, banks, public sector, foreign sector) into a small number of relations among macro variables based on consolidated accounts.

In a closed economy with a supply of money characterized by the presence of both government and credit money, the money balances held by the banking system should equal at any moment the difference between bank deposits and bank loans, plus the amount of credit facilities accorded by the central bank to commercial banks which has been actually used (Cavalieri, 1999).

25. For the interaction of demand and supply of money, a bidirectional causal ordering between real and monetary variables has to be admitted. There is no unique causal direction moving from the demand to the supply of money, as assumed by circuitists.

And in any monetary system in which supply of government and credit money coexist, causality goes from the former to the latter component of total money supply.

On the alleged Marxian and Keynesian connections of the monetary circuit approach.

26. Some authors of Graziani's group – Bellofiore, Forges Davanzati and Realfonzo (2000) – maintain that the Marxian "law of value" (his pure theory of labour value), though unsuited for a correct determination of commodities relative prices of production, is applicable to money and is consistent with the circuit theory. According to the "new interpretation" of the Marxian "transformation problem", which makes use of constant monetary expressions of labour time, instead of labour values, these authors think that the value of money may be coherently expressed by the amount of labour force used to produce a unit of net social output, valued at prices of production, in money terms. On this premise, the monetary value of the net output produced in the system would be proportional to the amount employed of living labour. They feel therefore entitled to interpret the circuit theory as a "monetary theory of labour value" suited to measure the purchasing power of money in labour terms (or in labour equivalents). On this ground, they claim that, at the beginning of the circuit story, it is the value of labour power which determines the value of money. And they propose to "enrol" Marx among the precursors of their theory of the monetary circuit.

In my opinion, this is hardly acceptable. Marx did never say that capitalist production presupposes credit creation by banks. He rejected Say's Law and thought that capitalist production presupposed an initial stock of commodity money. Not a stock of paper money, or a simple amount of credit money (abstract wealth). Messori and Zazzaro, on the contrary, do not object to the idea of ascribing a Marxian origin to the circuit theory (indeed, they recognize Graziani some merit for remarking this point).

27. Differently from the circuitists, Marx did not attribute a credit nature to the entire money supply. At his times money was in large part commodity money, made of a precious metal exogenously supplied. In his theory of money, which combined elements of the metallist and the

credit views, the value of commodity money could be expressed in terms of labour embodied, being measured by the amount of labour time required to produce and coin the metal. That of credit money could not.

Unfortunately, Marx himself paved the way to the circuitists' misunderstanding, as he used to speak of credit money also in a second and more general meaning, which regarded as such all the money which circulated in a capitalist economy, quite independently of its being commodity money ("true money") or paper money, because in his opinion it expressed the credit right of workers over the total product of the system.

28. As concerns the alleged connection between the circuit approach and Keynes' monetary theory of production – claimed by the circuitists and mentioned by Messori and Zazzaro in their paper – let me recall three things: (*i*) that Keynes considered the demand and the supply of money as stock relationships; (*ii*) that Keynes, as Marx, rejected Say's Law; and (*iii*) that, contrary to the circuitists, Keynes did not assume flow equilibrium in the money market.

Circuitism is neither a particular kind of Marxism, nor a special type of Keynesism.

References:

M. MESSORI (1985), *Le circuit de la monnaie: acquis et problèmes non résolus*, in R. Arena e A. Graziani, a cura di, *Production, circulation et monnaie*, Presses Univ. de France, Paris.

A. GRAZIANI (1988), *Il circuito monetario*, in M. Messori e A. Graziani, a cura di, *Moneta e produzione*, Einaudi, Torino, pp. XI-XLIII..

M. MESSORI (1988), *Agenti e mercati in uno schema periodale*, ibidem, pp. 285-330.

A. GRAZIANI (1994), *La teoria monetaria della produzione*, Banca Popolare dell'Etruria e del Lazio, Arezzo, trans. *The Monetary Theory of Production*, Cambridge Univ. Press, Cambridge, 2003.

D. CAVALIERI (1994), *La teoria monetaria della produzione di Keynes e i teorici del circuito: a proposito di un libro di Augusto Graziani*, "Studi Economici", vol. 49, n. 54, pp. 133-52.

A. GRAZIANI (1995), *A proposito di un articolo di Duccio Cavalieri*, "Studi Economici", vol. 50, n. 55, pp. 181-97.

D. CAVALIERI (1996), *Sullo statuto teorico dell'offerta di moneta: un dibattito con Augusto Graziani*, "Studi Economici", vol. 51, n. 59, pp. 99-126.

A. GRAZIANI (1996), *Seconda replica al Prof. Cavalieri*, "Studi Economici", ibidem, pp. 127-38.

D. CAVALIERI (1999), *Il circuito della moneta e il finanziamento dell'economia. Un'analisi teorica*, "Studi e note di economia", n. 3, pp. 45-84.

S. FIGUERA (2000), *Il carattere monetario dell'economia capitalistica alla luce di un recente dibattito*, "Studi Economici", vol. 55, n. 70, pp. 129-54.

R. BELLOFIORE, G. FORGES DAVANZATI. e R. REALFONZO (2000), *Marx Inside the Circuit. Discipline Device, Wage Bargaining and Unemployment in a Sequential Monetary Economy*, "Review of Political Economy", vol. 12, n. 4, pp. 403-17.

A. ZAZZARO (2003), *How Heterodox Is the Heterodoxy of Monetary Circuit Theory? The Nature of Money and the Microeconomics of the Circuit*, in L.P. Rochon and S. Rossi, eds., *Modern Theories of Money: The Nature and Role of Money in Capitalist Economies*, Elgar, Cheltenham, pp. 219-45.