

Financial stability requires macroeconomic foundations of macroeconomics

Sergio Rossi

Abstract: Financial stability features prominently among the goals of several post-crisis macroeconomic policies around the world. Being a systemic characteristic, financial stability requires a systemic analysis, which only macroeconomics can offer logically. Yet, the current way of doing macroeconomics is not up to the task, as it is grounded on so-called microfoundations. Considering macroeconomics as the science of aggregating data obtained at microeconomic level can lead indeed to conclusions that are either misleading or wrong. This paper points out that the true foundations of macroeconomics are macroeconomic, and that understanding the working of monetary economies of production and exchange requires a conceptual rather than a mathematical treatment of economic issues at a systemic level.

Keywords: financial crises, macroeconomics, monetary theory of production

Introduction

The objective of financial stability features prominently in any post-crisis macroeconomic policies around the world, to avoid another systemic turmoil after the 2007–2009 global crisis. Yet, at the time of writing, neither policy makers nor academic economists seem to be aware of the urgent necessity to provide truly macroeconomic foundations for a stability-oriented economic policy, by considering that the economic system as a whole is more than the sum of its constituent parts. To be sure, no economic set can be defined as the sum of its elements logically. To state it a bit less esoterically, the workings of economic systems do not depend exclusively on behaviour by individual agents

(producers, consumers, and the general government sector): macroeconomics has its own laws, which are in fact monetary–structural rather than behavioural. In this paper, we will argue that the theoretical principles – or “foundations” – of macroeconomics are by no means microeconomic, and that bank money requires a conceptual rather than a mathematical treatment of economic issues at a systemic level.

As is well known, mainstream economics stems from exactly the opposite arguments, claiming in particular that (1) macroeconomics has to be founded on microeconomics, (2) the microeconomic foundations of macroeconomics must be derived from general equilibrium analysis, and (3) the core of economics is mathematical (see Malinvaud and Younès, 1977; Parkin, 2000). This paper shows that these arguments lead macroeconomic analysis astray. We will focus on the essential elements of the debate, without entering into irrelevant details for the issues at stake. The next section explains that no microeconomic foundations can be helpful for a truly macroeconomic approach to the (either orderly or disorderly) workings of an economic system considered as a whole. The third section elaborates on this point, arguing that both the nature and role of money are instrumental in understanding the structural workings of the whole economy. The fourth section shows that macroeconomic analysis has to be grounded on logical identities rather than on equilibrium conditions. The fifth section provides a macroeconomic appraisal of financial capital and financial market transactions in order for macroeconomic policies to have an impact on the monetary–structural architecture of capitalist systems, within which financial markets and motives have taken centre stage. The last section concludes briefly.

Mainstream economics and the fundamental shortcomings of any “microfounded” macroeconomics

Malinvaud (1991) maintains that no macroeconomic phenomenon can be understood independently of microeconomic events, because economists must necessarily derive data from empirical evidence, which stems from their direct observation of the latter events. This approach informs not only economists’ models, but also policy-makers’ decisions as well as financial institutions’ choices based, as a general rule, on these models, with little or no reservations about their analytical soundness. “[The macroeconomic] models’ purpose is to

specify what we already know about factors liable to determine macroeconomic events and about the relations between these factors; but our previous knowledge derives from the microeconomic level, as it concerns the conditions in which economic agents act as well as the decisions they take” (Malinvaud, 1991, p. 24, our translation). In this view, largely shared by the economics profession, agents’ behaviour is all what counts in determining any results at the macroeconomic level. In order to influence macroeconomic performance, therefore, policy makers will have to understand and influence microeconomic behaviour. Malinvaud recognizes, however, that “the [mathematical] modelling of behaviour has not yet been achieved” (p. 120, our translation). He has nevertheless no misgivings about the validity of mathematical modelling in economics, as, in his view, this is the only way to transform economics into a scientific discipline – even though Malinvaud agrees that too much complexity into mathematical models makes them become useless, as they are then too intricate to provide any solutions to actual macroeconomic problems (Cencini, 2005).

To be true, economists have different opinions about what kind of microeconomics is best suited to provide relevant foundations to macroeconomics. Generally speaking, Keynesian economists privilege non-Walrasian individual choice theories (Canale, 2007). Mainstream economists, by way of contrast, consider to date that the “study of the microfoundations of macroeconomics is coextensive with general equilibrium analysis” (Weintraub, 1979, p. 10). Be that as it may, according to Mankiw (1997, p. 456), there should be no doubt that “all macrophenomena are the aggregate of many microphenomena”. In this view, which is the conventional method of macroeconomic analysis, “If the first step is to write down the problem faced by the microeconomic agent in terms of fundamental parameters. This agent is assumed to be representative, and the solution to this problem is assumed to hold for the macroeconomy” (Hartley, 1997, p. 26).

Now, Mankiw (1997, p. 456), for one, acknowledges to be true that it is not “sure that all macroeconomics necessarily has to start off with microeconomic building blocks”. In this respect, Fitoussi (1983, pp. 27–8) points out that “macroeconomics has its own dimension which must be considered and not just alluded to”. Hoover (2001, p. 285) reinforces this point, maintaining that macroeconomics is independent of individual behaviour, and noting also that “the arguments for microfoundations for macroeconomics are unsound, resting on equivocations and false analogies”. This echoes the Samuelson well-known

“fallacy of composition”, that is, “fallacy in which what is true of a part is, on that account alone, alleged to be true for the whole” (Hartley, 1997, p. 170). Indeed, reducing the behaviour of a group of different economic agents to the behaviour of a somehow representative standard utility, or profit, maximiser leads to conclusions that can be either misleading or wrong (see Kirman, 1992, p. 117; Janssen, 1993, pp. 84–93; Martel, 1996, pp. 140–1). The whole is, in reality, more than the sum of its constituent parts (see Ormerod, 1994; Bortis, 1997).

In this perspective, as Romer (1993, p. 20) points out cogently, “uniting microeconomics and macroeconomics may not be a realistic objective: the simplifications that are useful in understanding most microeconomic phenomena may be fatal to efforts to understand macroeconomic fluctuations”. As he claims, “perhaps the most obvious and fundamental line of research in this regard is to examine the macroeconomic evidence concerning the effects of monetary and other aggregate demand disturbances” (p. 20).

To be true, Weintraub (1979, p. 8) acknowledges that monetary analysis is best developed through a macroeconomic approach, when he states that “understanding of money, bonds, and intertemporal choice in a monetary economy will be shaped almost totally by the more sophisticated, although more aggregated understanding of macro-monetary theorists”. Yet, as shown by Rossi (2001, Ch. 3), in mainstream economics money is considered “as if” it were an item in the set of goods and services, whose utility and rarity determine its value in exchange allegedly. Indeed, money-management policies *à la* Friedman (1968) epitomize the view that central banks can control the money supply because of its supposed (at least partial) exogeneity, and that the rate of interest is an endogenous magnitude resulting from supply and demand on the so-called money market (as in the canonical *IS-LM* model). Let us elaborate on this in the next section, to show that monetary economics is the cornerstone of the macrofoundations of macroeconomics, since money is essential for the existence and workings of our monetary systems of production and exchange. We will then argue that a monetary macroeconomic theory of production, in the spirit of Keynes, must be put to the fore and developed logically, to explain the workings of a capitalist economy as well as to inform public policies aimed at financial stability as well as macroeconomic stabilization.

Monetary economics as the cornerstone of macroeconomics

As a number of economists note, money and banking are not satisfactorily considered in general equilibrium analysis. Recent developments within mainstream economics show that both the Walrasian “auctioneer” and the “*tâtonnement*” process fail to account for modern monetary and financial institutions. A new series of models has therefore been put forward, ranging from non-Walrasian models of general equilibrium grounded on game theory to monetary search models with a Mengerian pedigree (see, for instance, Ostroy, 1973; Starr, 1980, 1989; Kiyotaki and Wright, 1989, 1993; Kocherlakota, 1998). All these attempts rely in fact on an old-fashioned conception of money, because they do not consider the totally immaterial nature of bank money (see Rossi, 2007, Ch. 1). Their anachronistic choice of commodity money stems from the untiring attempt by mainstream economists to preserve the neoclassical paradigm of general equilibrium analysis, as it allows them to exacerbate mathematical modelling rather than entering the realm of conceptual thinking in economics, which to be sure is a much more difficult task intellectually. The workings of any monetary economies of production and exchange, nevertheless, show that money is pervasive in any economic activities. Wages, prices, profits, capital, interest, saving, investment, and so on, are concepts and magnitudes having a monetary nature. Further, money is not a real good, so that any attempts at explaining economics in purely real terms are doomed to fail. Unless one uncritically accepts the Debreu (1959, p. 32) axiom that “real goods are numbers”, an idea that is of course wrong in the real world, one has to concede that the Walrasian view is not suited to solving the problem for which it was conceived, namely, the determination of monetary prices. This problem can only be solved when money is conceived of as a purely numerical form (see Rossi, 2007, Ch. 1), although this implies a principal change in theory, and in particular in considering the relation between microeconomics and macroeconomics.

In this collective task, which remains to be achieved by the economics profession, the work carried out by Keynes (1930, 1936) proves to be seminal. His own contributions are beyond dispute in modern macroeconomics, as is the fact that Keynes privileged the analysis of production over that of exchange. The principal advance made by him consists in choosing money as the numerical standard of value, notably in his attempt to work out a “monetary theory of

production” (see Keynes, 1933/1973a). Keynes’s aim was to provide a synthesis between classical and neoclassical analyses, although this aim has been betrayed and usurped through the attempts by mainstream economists to subsume Keynes’s original contribution under the neoclassical synthesis *à la* Hicks–Hansen, as epitomized by the *IS–LM* graph. A true synthesis between Walras, on the one hand, and Keynes and the Classics, on the other hand, requires in fact the application of Walras’s concept of *numéraire* to the monetary analysis of production as well as to the working out of coherent macroeconomic principles (Cencini, 2005). To be sure, as cogently noted by Pasinetti (1993, pp. 63–4) in this connection, there is “an important asymmetry between monetary regimes in which the numéraire of the price system is physical, and monetary regimes in which the numéraire of the price system is a purely nominal unit of account, not linked to any quantitative specification of any particular physical commodity”. Indeed, money is a purely numerical means of payment, which amounts to saying that it is not the object of any payments. These objects are indeed, always and everywhere, produced by wage earners in an “entrepreneur economy”, as Keynes (1933/1973b, p. 89) labelled our monetary economies of production.

A truly systemic, that is, macroeconomic analysis of monetary production economies has in fact still to be worked out, as neither neoclassical nor Keynesian theories of any kinds have provided macroeconomic foundations to macroeconomics to date: all these theories are still essentially based on (dis)equilibrium analysis, rather than being logically derived from truly macroeconomic identities. Keynes’s logical identities are actually crucial in this respect, as we are going to show in the next section.

Money, income, and effective demand as seen through Keynes’s identities

Rather than being useless tautologies or “simplifying assumptions of doubtful validity” (Vercelli, 1991, p. 225), Keynes’s identities are, in fact, crucial for macroeconomics, and provide its own macrofoundations (see Gnos, 1998). In Hicks’s interpretation of Keynes’s theory, however, the identities $Y \equiv C + I$ and $S \equiv I$ are actually transformed into equilibrium conditions. Keynesian economists did the same, thereby implicitly accepting to integrate Keynes’s original contribution into the theoretical framework of equilibrium analysis. Post-Keynesians have thus to go back to the originality of Keynes’s message, and

to reappraise his logical identities, to provide truly macroeconomic foundations to macroeconomics and macroeconomic policy making (Cencini, 2005). Once again, conceptual analysis rather than mathematical modelling is the key for the opening of a fruitful and long-needed avenue in both economics and economic policy. Let us elaborate on this point referring to Keynes's principle of effective demand.

Keynes's (1936) principle of effective demand shows that a macroeconomic approach to macroeconomics is possible if effective demand is seen through Keynes's identities, and if bank money is conceived of as a purely numerical means of payment. Keynes (1936, Ch. 3) introduced the principle of effective demand to show that the equality between total supply and total demand obtains irrespective of the level of employment (see Hartwig, 2004). The principle of effective demand can in fact be interpreted to mean (1) "the present value of the expected sale proceeds" (Keynes, 1973, p. 425), or (2) the amount of global demand for any given level of produced output. In the first case, effective demand concerns the *ex-ante* relation between planned production and expected sales. Supply and demand are therefore also expected (purely virtual magnitudes), and no functional relation can be established in this case between them. Indeed, before production occurs, no agent can express a demand, because no income is available to this effect. In this interpretation, the principle of effective demand amounts then to the view that entrepreneurs' decisions are influenced by their own expectations. The second interpretation of Keynes's principle of effective demand considers by contrast actual magnitudes. Current income being generated by current production, and since the amount of income determines demand, *ex-post* the principle of effective demand establishes the necessary equality (to wit, the identity) between supply and demand on the market for produced goods and services (Cencini, 2005).

To be sure, current output (supply) and current income (demand) are the results of the same action: the payment of current production costs by firms through banks (Gnos, 1998, p. 45). Being the twin outcomes of current production, supply and demand cannot but be identical objectively: "the income derived in the aggregate by all the elements in the community concerned in a productive activity necessarily has a value exactly equal to the *value* of the output" (Keynes, 1936, p. 20). The macroeconomic identity between total supply and total demand results thus from the fact that production generates the amount of national income which is necessary and sufficient for the final purchase of current

output. Independently of agents' expectations and behaviour, the identity $Y \equiv C + I$ means indeed that actual supply (produced output) cannot differ from actual demand (current income), although this does not mean that Say's law is the guarantee of full employment (see Gnos (1998, pp. 45–6), and Rossi (2001, pp. 193–4) for analytical elaboration on this point). This is confirmed by Keynes's identity between S and I . As the theory of money emissions explains (see Rossi, 2006, for a survey), S and I are always identically equal, independently of the actual level of total income produced (Schmitt, 1972, pp. 164–5; Cencini, 2001, pp. 158–60). To put it in the words of Moore (2006, pp. 156–73), saving is in reality just the accounting record of investment: the latter, carried out through a bank credit, gives rise to the former as a result of the payment of wages in the investment-goods sector. These wages, in the form of bank deposits, are necessarily saved before they are spent on either the products or the financial market, even though their existence as savings might be very short in time, because wage earners can dispose of them the instant after they have been formed as a result of a bank's payment of the relevant wage bill.

In this regard, one should be aware that money and income are not one and the same thing. This is so much so that banks can and do issue money but cannot create income by a stroke of the keyboard. Money is the numerical form of any kinds of payment, which is an "asset–liability" (Schmitt, 1975, p. 13), that is, a double-entry in any bank's ledger: it measures (numerically) both the debt of the payer (which is an asset for the bank) and the credit of the payee (a liability for the bank, in the form of a deposit). Income, by way of contrast, is the result of production activities to which the banking system gives a monetary (that is, a purely numerical) form, in order to commensurate the newly-produced output and thereby to remunerate the relevant production factors, namely, wage earners. As soon as income exists, banks do lend it, through a financial intermediation, to those agents, like firms, that are looking to finance their activities through the sale of securities. "Banks, therefore, do not create value as they issue money, and their newly issued money takes on a real value only if it is associated with new production" (Bossone, 2001, p. 870, fn. 19). It is therefore production that makes it possible for income to exist and to be lent by banks to any kind of borrowers. Yet, without banks, no income would ever be produced, as no credit would be available in order for businesses to pay out any amounts of wages. In reality, banks issue the means and not the object of payment, when they act as money-purveyors, which means that money is issued as a flow any time a bank carries out a payment on behalf of one of its clients.

The macroeconomics of financial capital and finance-dominated capitalism

When income is produced, it is saved and transformed into a financial capital within a bank's ledger, until the relevant deposit holder spends it on the products market. Banks are thereby in a position to lend on financial markets an income that is saved in the form of bank deposits. If the agent borrowing this income spends it in purchasing unsold output, then the bank deposits corresponding to the production costs of the relevant output are destroyed, as firms recover on the product market what they borrowed on the factor market via banks' advances. If, however, the bank's borrower spends the relevant bank deposits on financial markets, that is to say, in order to speculate on any financial items, then a rapidly inflating asset bubble, on either real or financial assets, can arise, which sooner or later may burst and thereby ravage the global economy, as this occurred during the 2007–2009 crisis.

The relationship between banks, firms, and wage earners is crucial in this regard: in the pre-financialization era, commercial banks were decisive in financing firms' expenditure on the labour market, as a result of which (new) bank deposits were formed in the ownership of workers. Commercial banks purveyed indeed the required "initial finance" in order for any creditworthy businesses to set out the relevant production process, obtaining the necessary credits from banks in advance of sales receipts on the products market (see Graziani, 2003). As monetary circuits were opened, and closed, by banks working with non-financial firms in any sectors of economic activity, production, circulation, and consumption of output in economic terms were carried out through the payments settled by the commercial banking sector, on top of which the central bank operated as settlement institution on the interbank market (see Rossi, 2007, pp. 32–88). Hence, economic activity was organized across three macro-categories of agents, namely, banks, firms, and wage earners: on the labour market, firms paid out the current wage bill to workers through the banking sector; on the products market, firms sold produced output in order for them to obtain "final finance", and thereby reimburse (a part of) their bank debts; on the financial market, firms sold several types of assets in order to capture those bank deposits that wage earners disposed of in exchange for any financial assets that paid a rate of interest higher than that on their deposits with banks. Every economic flow was intermediated by the banking sector, whose

working both had a systemic importance and was instrumental in any production–consumption activities across the economic system as a whole.

Financialization changed this framework dramatically. “Instead of industry being the net borrower in relation to the banking sector, 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 that seeks profitable outlets that provide high financial returns for its internal funds” (Seccareccia, 2009, p. 3). In this new framework, induced by financialization over the last thirty years, several businesses moved from a debtor into a creditor position towards banks, and many wage earners (especially at the bottom of the wage pyramid) moved to the opposite, and for them really problematic, situation, becoming net borrowers from both banks and non-bank financial institutions (like mortgage brokers and credit card issuers). All these structural changes within our monetary economies of production occurred because the profitability of businesses’ investment in the production process declined, owing to fixed-capital over-accumulation (Rossi, 2008; Bailly, 2010). As a result, non-financial businesses have come to spend their retained profits on the financial market rather than for new production processes, in order for them to earn higher returns over a shorter period of time than this is really possible in any production activities.

Hence, financial crises are not simply the result of agents’ forms of behaviour, but rather the outcome of a monetary–structural process eventually, inducing businesses to spend the bulk of their earnings on financial markets rather than in production activities. Unsaleable output and huge liquidity in the firms’ vaults provide the incentives for them, and financial businesses, to practice so-called “predatory lending” to the largest possible number of wage earners, who have been looking for a way to keep (and whenever possible also to rise) their standard of living. As regards in particular commercial banks, which have to remunerate the huge liquidity firms deposit with them, they are led thereby to lend to an increasing number of “subprime” individuals, whose wages are stagnating or are even reduced by the workings of wrong macroeconomic policies and structural factors that combine, to make the capitalist system unstable. Crises are, eventually, the outcome of such a regime, which microfounded approaches to macroeconomics can only exacerbate when they inform economic policies on the ground of the “fallacy of composition”. The key to avoiding any further systemic crises is thus the elaboration of truly macroeconomic

“foundations” to macroeconomics, to inform macroeconomic policy aimed at financial stability in the whole system, once policy makers, but also the economics profession at large, will have understood the monetary–structural laws that govern the workings of any capitalist systems independently of agents’ behaviour and expectations.

Concluding remarks

The macroeconomic foundations of macroeconomics are not empirical laws, derived from constant series of events and influenced by the agents’ forms of behaviour. Independently of individual or collective behaviour, the macrofoundations stem from the flow nature of money and concern the logical structure of payments relating to production and exchange, thereby establishing an identity between total supply and total demand in Keynes’s sense. As the payment of firms’ production costs transforms produced output into a sum of bank deposits, the measure of macroeconomic supply cannot but coincide with the numerical expression of these costs. Once it is recognized that labour is the unique macroeconomic factor of production (Keynes, 1936, pp. 213–14), it necessarily follows that macroeconomic supply is equal to the total amount of (direct and indirect) wages paid out by businesses to workers: as argued by Keynes (1936, Ch. 4), money wages are the standard through which produced output acquires its numerical form (supply). As for macroeconomic demand, it is determined by the total amount of income available within a given economic system and recorded as a bank deposit. Since it is through production that macroeconomic income is formed, money wages define total supply as well as total demand: macroeconomic supply and macroeconomic demand are thereby the two terms of an identity, vindicating Keynes’s analysis for good on logical ground (Cencini, 2005).

On the grounds of these macroeconomic foundations of macroeconomics, it then becomes possible to determine the principles of the reform necessary in order to make sure that any capitalist system is freed of monetary pathologies, which lead to crises eventually. Double-entry bookkeeping is at the logical origin of bank money, and represents the cornerstone of today’s small-value and large-value payments systems. Both Ricardo and Keynes are among those economists who have mostly contributed to the understanding of the nature of bank money. Ricardo introduced for instance the distinction between money creation and financial intermediation that led to the 1844 Bank Act (see

Bradley, 2001). Elaborating on Smith's conceptions of nominal money and real money, Ricardo was able to show that while nominal money is created by banks according to the now well-known principle that loans make deposits, real money (that is to say, income) derives from production. Keynes's work on the monetary theory of production further contributed to improve monetary analysis, while bankers improved the workings of our payments systems by implementing an interbank settlement structure to finalize domestic payments on any markets (see Rossi, 2005).

The analysis carried out in this paper shows that mainstream economics is logically not adequate to address systemic crises. A rigorous analysis of the way money is created by banks and associated to physical output through production shows that the microeconomic conception of money and of the way the latter interacts with production and circulation of output is unrealistic and misleading. By defining money as an asset *per se*, mainstream economics misses the key distinction between money and income, and is unable to grasp the monetary dimension of production. On this ground, financial stability advocated today by both governments and monetary policy makers around the world is doomed to remain a wishful thinking. In fact, owing to a "microfounded" conception of macroeconomics and economic policy making, the suggested rules and regulations can, at best, influence agents' behaviour and expectations but cannot provide the monetary structures required to avoid the occurrence of (further) systemic crises. The first step in the right direction requires, in fact, abandoning the mainstream paradigm for a more holistic approach to macroeconomics and macroeconomic policy making. It is the collective task of the economics profession to work out such an approach, the seeds of which are to be found in Keynes's own writings, if one really thinks anew about the nature of bank money within any capitalist economies of production and exchange.

Acknowledgements

An earlier version of this paper was presented at the 12th international conference of the Research Network on Macroeconomics and Macroeconomic Policies held in Berlin on 31st October and 1st November 2008. The author thanks Ingrid Rima and Pavlina Tcherneva for their comments on that occasion, and Valentin Cojanu for his kind invitation to contribute a paper to this issue of the *Journal of Philosophical Economics*. The usual disclaimer applies.

References

- Bailly, J.-L. (2010) 'Du surinvestissement au surendettement des ménages', *European Journal of Economic and Social Systems*, 23 (1): 63–80
- Bortis, H. (1997) *Institutions, Behaviour and Economic Theory: A Contribution to Classical–Keynesian Political Economy*, Cambridge: Cambridge University Press
- Bossone, B. (2001) 'Circuit theory of banking and finance', *Journal of Banking and Finance*, 25 (5): 857–90
- Bradley, X. (2001) 'An experience in banking departmentalisation: the Bank Act of 1844', Centre for Banking Studies and Research Laboratory of Monetary Economics, *Quaderni di ricerca*, no. 5, June
- Canale, R.R. (2007) 'Microfoundations of macroeconomics: post-Keynesian contributions on the theory of the firm', *Münich Personal RePEc Archive Paper*, no. 2713, available at <http://mpira.ub.uni-muenchen.de/2713/>
- Cencini, A. (2001) *Monetary Macroeconomics: a New Approach*, London and New York: Routledge
- Cencini, A. (2005) *Macroeconomic Foundations of Macroeconomics*, London and New York: Routledge
- Debreu, G. (1959) *Theory of Value: an Axiomatic Analysis of Economic Equilibrium*, New York: John Wiley
- Fitoussi, J.-P. (ed.) (1983) *Modern Macroeconomic Theory: an Overview*, Oxford: Blackwell
- Friedman, M. (1968) 'The role of monetary policy', *American Economic Review*, 58 (1): 1–17
- Gnos, C. (1998) 'The Keynesian identity of income and output', in P. Fontaine and A. Jolink (eds) *Historical Perspectives on Macroeconomics: Sixty Years after the General Theory*, London and New York: Routledge, pp. 40–8
- Graziani, A. (2003) *The Monetary Theory of Production*, Cambridge: Cambridge University Press

Hartley, J.E. (1997) *The Representative Agent in Macroeconomics*, London and New York: Routledge

Hartwig, J. (2004) 'Beyond the market paradigm: on Keynes's principle of effective demand, and on the irrelevance of rigidities for his explanation of involuntary unemployment', *History of Economic Ideas*, 12 (1): 67–94

Hoover, K.D. (2001) *Causality in Macroeconomics*, Cambridge: Cambridge University Press

Janssen, M.C.W. (1993) *Microfoundations: a Critical Inquiry*, London and New York: Routledge

Keynes, J.M. (1930) *A Treatise on Money*, London: Macmillan, 2 vols

Keynes, J.M. (1933/1973a) 'A monetary theory of production', in *The Collected Writings of John Maynard Keynes*, Vol. XIII *The General Theory and After: Part I, Preparation*, London and Basingstoke: Macmillan, pp. 408–11

Keynes, J.M. (1933/1973b) 'The distinction between a co-operative economy and an entrepreneur economy', in *The Collected Writings of John Maynard Keynes*, Vol. XXIX *The General Theory and After: a Supplement*, London and Basingstoke: Macmillan, pp. 76–106

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

Keynes, J.M. (1973) *The Collected Writings of John Maynard Keynes*, Vol. XIII *The General Theory and After: Part I, Preparation*, London and Basingstoke: Macmillan

Kirman, A.P. (1992) 'Whom or what does the representative individual represent?', *Journal of Economic Perspectives*, 6 (2): 117–36

Kiyotaki, N. and R. Wright (1989) 'On money as a medium of exchange', *Journal of Political Economy*, 97 (4): 927–54

Kiyotaki, N. and R. Wright (1993) 'A search-theoretic approach to monetary economics', *American Economic Review*, 83 (1): 63–77

Kocherlakota, N.R. (1998) 'Money is memory', *Journal of Economic Theory*, 81 (2): 232–51

Malinvaud, E. (1991) *Voies de la recherche macroéconomique*, Paris: Odile Jacob

Malinvaud, E. and Y. Younès (1977) 'Some new concepts for the microeconomic foundations of macroeconomics', in G.C. Harcourt (ed.) *The Microeconomic Foundations of Macroeconomics*, London and Basingstoke: Macmillan, pp. 62–85

Mankiw, N.G. (1997) 'An interview', in B. Snowdon and H.R. Vane (eds) *A Macroeconomics Reader*, London and New York: Routledge, pp. 454–70

Martel, R.J. (1996) 'Heterogeneity, aggregation, and a meaningful macroeconomics', in D. Colander (ed.) *Beyond Microfoundations: Post Walrasian Macroeconomics*, Cambridge: Cambridge University Press, pp. 127–44

Moore, B.J. (2006) *Shaking the Invisible Hand: Complexity, Endogenous Money and Exogenous Interest Rates*, Basingstoke and New York: Palgrave Macmillan

Ormerod, P. (1994) *The Death of Economics*, London: Faber and Faber

Ostroy, J.M. (1973) 'The informational efficiency of monetary exchange', *American Economic Review*, 63 (4): 597–610

Parkin, M. (2000) 'The principles of macroeconomics at the millennium', *American Economic Review*, 90 (2): 85–9

Pasinetti, L.L. (1993) *Structural Economic Dynamics: a Theory of the Economic Consequences of Human Learning*, Cambridge: Cambridge University Press

Romer, D. (1993) 'The new Keynesian synthesis', *Journal of Economic Perspectives*, 7 (1): 5–22

Rossi, S. (2001) *Money and Inflation: a New Macroeconomic Analysis*, Cheltenham and Northampton: Edward Elgar (reprinted 2003)

Rossi, S. (2005) 'Central banking in a monetary theory of production: the economics of payment finality from a circular-flow perspective', in G. Fontana and R. Realfonzo (eds) *The Monetary Theory of Production: Tradition and Perspectives*, Basingstoke: Palgrave Macmillan, pp. 139–51

Rossi, S. (2006) 'The theory of money emissions', in P. Arestis and M. Sawyer (eds) *A Handbook of Alternative Monetary Economics*, Cheltenham and Northampton: Edward Elgar, pp. 121–38

Rossi, S. (2007) *Money and Payments in Theory and Practice*, London and New York: Routledge

Rossi, S. (2008) 'The role of banks in the (over-)accumulation of capital', *European Journal of Economic and Social Systems*, 21 (2): 213–31

Schmitt, B. (1972) *Macroeconomic Theory: a Fundamental Revision*, Albeuve: Castella

Schmitt, B. (1975) *Théorie unitaire de la monnaie, nationale et internationale*, Albeuve: Castella

Seccareccia, M. (2009) 'Financialization and the transformation of commercial banking in Canada', paper presented at the conference on "The Financial and Monetary Crisis", University of Burgundy, Dijon, 10–12 December, mimeo

Snowdon, B. and H.R. Vane (1997) *A Macroeconomics Reader*, London and New York: Routledge

Starr, R.M. (1980) 'General equilibrium approaches to the study of monetary economies: comments on recent developments', in J.H. Kareken and N. Wallace (eds) *Models of Monetary Economies*, Minneapolis: Federal Reserve Bank of Minneapolis, pp. 261–3

Starr, R.M. (1989) 'Money in formal general equilibrium analysis', in R.M. Starr (ed.) *General Equilibrium Models of Monetary Economies: Studies in the Static Foundations of Monetary Theory*, San Diego: Academic Press, pp. 3–6

Vercelli, A. (1991) *Methodological Foundations of Macroeconomics: Keynes and Lucas*, Cambridge and New York: Cambridge University Press

Weintraub, E.R. (1979) *Microfoundations*, Cambridge: Cambridge University Press

Sergio Rossi is Full Professor of Economics and Chair of Macroeconomics and Monetary Economics in the Department of Economics at the University of Fribourg, Switzerland (sergio.rossi@unifr.ch)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.