

New Approaches to Monetary Theory

Interdisciplinary perspectives

Edited by
Heiner Ganssmann

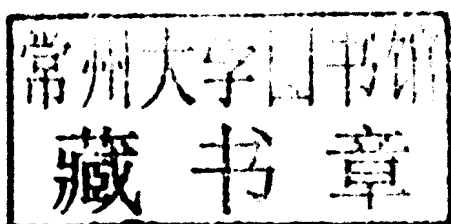


Routledge International Studies in Money and Banking

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First published 2011
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada
by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
New approaches to monetary economics and theory : interdisciplinary perspectives /edited by Heiner Ganssmann.

p. cm.

Includes bibliographical references and index.

1. Money. 2. Monetary policy. I. Ganssmann, Heiner.

HG221.N3924 2010

339.5'3-dc22

2010035712

ISBN: 978-0-415-59525-4 (hbk)

ISBN: 978-0-203-83012-3 (ebk)

Typeset in Times by
Wearset Ltd, Boldon, Tyne and Wear
Printed and bound by TJI Digital, Padstow, Cornwall

New Approaches to Monetary Theory

Everybody uses money every day, but we rarely stop to think about how money works. In this book, scholars from different disciplines seek to answer that question; from historians to economists, sociologists, a philosopher and a physicist. Money works as a social construction because we have mutual expectations that support its use – despite the seeming irrationality of trading valuable things or doing strenuous work for pieces of paper or numbers in accounts.

Recently, there has been a revival of interest in monetary theory, not least because the impacts of globalizing markets and of new communication and information technologies have changed the forms of money. The deep crisis of the financial system has demonstrated the importance of a functioning monetary system and although renewed interest in this has led to significant contributions in various fields, it remains true that no social science discipline on its own is sufficiently equipped to explain the basic workings of monetary systems, their rapid innovation and their effects on social, economic and political structures.

The contributors to this book report on their latest research on the origins of money, on the nature of monetary transactions, on money and the state, and on the role of money and finance in the recent global crisis. They show how established theories of money and the policies guided by these theories went wrong. This collection will be a valuable resource for students and researchers seeking a deeper understanding of money.

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1 Introduction

Money puzzles

Heiner Ganssmann

Although the subject of money clearly belongs in economics, economic theorists in general cannot be accused of spending undue time and effort on understanding money. Obviously, there are economists specializing in the theory of money and financial institutions, but the overwhelming amount of even this recent literature is more concerned with monetary policy issues than with coming to terms with basic explanations of money in pure theory. Perhaps this is a reflection of frustration. The enduring controversies about the nature of money seem to be as old as the thing itself (Meikle 2000; Seaford 2004). Perhaps a further reason for the preference to ignore monetary theory is to be found in the tacit acknowledgment that money still does not fit into the general Walrasian framework that is held to be the core of modern economic theory – an acknowledgment that, if articulated, would point to the need for leaving the framework of general equilibrium theory behind.¹ As Frank Hahn, who has contributed major insights into the obstacles of integrating money into the Arrow/Debreu general equilibrium framework (for example, Hahn 1973), put it once: ‘money in economic theory always brings out the worst in us’ (Hahn 1977: 31). Within economics this situation has led to a split between the orthodox mainstream and a multifaceted heterodoxy that is especially visible in matters of monetary theory (see the various heterodox arguments of economists Bellofiore, Bryan and Rafferty, Cartelier, Herr, Iwai, Smithin, Wray in this volume).

For the non-economist, this state of things is somewhat frustrating. Clearly, social scientists and historians of economic and social life need a basic understanding of money in order to come to terms with their own work. As economists leave most of that need unanswered, many outsiders have attempted to develop alternative understandings of money or even tried to find out what went wrong with the efforts in monetary analysis in economics. For example, Karl Polanyi responded to the needs of historical anthropological research when he developed his critique of ‘formal’ as opposed to ‘substantive’ economic theory. He needed an appropriate perspective for analysing non-market forms of economic life and what he called ‘formal’ (i.e. neoclassical) economic theory appeared too dependent on the assumption of the universality of markets to be useful (Polanyi 1968 [1957], see Renger, Chapter 2 in this volume, for the use of Polanyian arguments).

The Berlin workshop

Both the split between monetary orthodoxy and heterodoxy within economics and the efforts by outsiders, in our case historians, sociologists and philosophers to understand money are documented in this collection of interdisciplinary contributions to the theory of money. It contains papers presented at an interdisciplinary workshop on 'Money Puzzles' that I organized at the Department of Sociology of Freie Universität Berlin in 2009.

Perhaps it is useful to explain that my motivation for organizing such an interdisciplinary meeting sprang out of a long-lasting frustration as a sociologist. Having been exposed to the ideas of Marx, Simmel, Weber, Schumpeter and Keynes on money during my student days, I was not very satisfied with the way contemporary sociologists deal with money in their theories of modern society (Ganssmann 1988), mostly because they seem to ignore the function of money as a societal disciplining device, a means of social control. So I engaged in a long effort to work through the broader literature on money. This turned out to be a rough experience. First of all, because modern economic theory, before one can even come to grips with issues of content, is almost inaccessible to social scientists who are not themselves trained and engaged in constructing formal models that require more or less advanced mathematical tools. As a consequence, there is a deep rift between what contemporary economic theorists and what non-economists do. Second, each discipline not only has its own vocabulary and research tools, but also its own explanatory goals, so that a lot of controversy in and between disciplines seems to be the result of almost deliberate misunderstandings (cf. Maurer 2006 for an anthropologist, Melitz 1970 for an economist). Third, reading texts on money from heterogeneous backgrounds in a wide range from fiction, say Zola's *Money* (1891), to econophysics, say Dragulescu and Yakovenko (2000) on the *Statistical Mechanics of Money*, is a very mixed blessing. On the one hand, one is exposed to a chaotic disharmony of voices telling all sorts of disparate stories about something that everybody seems to know all too well from everyday life; on the other hand, there are exciting unexpected insights on money to be discovered in some niches that are not taken up in the more general communication on money, academic or otherwise.² Given such an experience, I was convinced that a better understanding of money may be gained by more interdisciplinary communication, at least between those in the various sciences – from soft to hard – who are willing to respect and listen to each other. The workshop in Berlin was the result of an attempt to get together such a group of scholars to discuss a range of 'money puzzles', that is, selected issues that continue to be controversial in the theory of money. Before introducing these issues and surveying the ways in which they are discussed in the chapters that follow, it is useful to sketch the state of monetary theory in mainstream economics insofar as it provides a common background for this discussion.

General background: mainstream monetary theory

Evidently there are plenty of unsettled issues and controversies concerning money, some old, some fairly new. Within economics, there is a mainstream that appears to be satisfied with old answers to persistent problems, most fundamentally the problem of how to integrate money into the general body of economic theory. Roughly, the architecture of traditional Walrasian general equilibrium theory is such that relative prices are determined without explicit reference to exchange transactions and the use of money. Relative prices are uniformly expressed in terms of exchange ratios with one arbitrarily selected good serving as the numéraire for the other $n-1$ goods. As a device for simplifying calculations, the numéraire can be seen as a unit of account, but it is not clear how and why the agents in a competitive equilibrium economy should use such a device. To proceed from general equilibrium theory to a complementary theory of money, money has to be added in its other functions (means of exchange, means of payment, store of value) to the general equilibrium architecture. The simplest – or, rather, the most naive – way to accomplish this consists of introducing the total money supply at the macro-level and using the quantity of money (and some assumptions about its velocity of circulation) to determine absolute prices. Whether money is introduced as commodity money or as fiat money does not matter much for the structure of the theory, but state sponsored fiat money raises issues of acceptability that are different from those related to commodity money, as the latter is taken to have ‘intrinsic value’. Introducing variations in the money supply opens the way to discussing inflation and its consequences for monetary policy, as in the enduring debate (for example, see Friedman 1968, Lucas 1995) about the trade-off between inflation and unemployment depicted by the Phillips curve. But to this day it is far from clear what the ‘micro-foundations’ underpinning these conceptual steps should be. The search for micro-foundations means that questions such as the following have to be answered with reference to agents, their beliefs and desires: Whose idea was it to create something like money? Did it emerge spontaneously as a tool in exchange transactions? Or, was it introduced by some enlightened authority? Who is the benevolent agent supplying money? Given fiat money, why would agents use intrinsically worthless money objects? If they only accept it as a *quid pro quo* in transactions when they are confident that others will accept it in their turn, how can such confidence be built? In other words, it is simply not satisfactory to introduce money by postulating a smoother operation of the system, for example, a general decrease in transaction costs, with the help of a common means of accounting or exchange. The agents introducing or creating money should be specified in terms of their beliefs and desires. Despite many efforts, most prominently perhaps that of Menger ([1892] 1970), this proved to be difficult. Therefore, a shortcut is usually taken: money is exogenous, entering the economy like manna from heaven. Long before Walras, the justification for this rather helpless procedure has been that money is only significant in saving transaction costs,³ but

otherwise neutral⁴ – meaning that it has no effect on relative prices – therefore it is basically unimportant for the long-run operation of the ‘real’ economy.

While such arguments play a dominant role in conflicts over economic policy that are dressed up as theoretical conflicts – say between Friedman, Lucas and the Keynesians – their underpinning in terms of monetary theory in a narrower sense are weak, as the enduring paradox of postulating short-run monetary effects along with long-run neutrality indicates. This weakness has periodically stimulated renewed efforts to analyse the role of money in more satisfactory ways, on the one hand by introducing the state explicitly as the agent responsible for introducing and managing money in the chartalist tradition, on the other hand, by attempting to reconstruct the micro-foundations of money use, that is, the situation, the beliefs and the desires of agents engaged in monetary transactions.

Search theories of money are recent contributions promising such micro-foundations (early versions are Iwai 1988, Kiyotaki and Wright 1989, 1993; for surveys see Wallace 2001, Shi 2006) by applying mechanism design, or what is sometimes called ‘reverse game theory’. The name ‘search theory’ derives from the basic idea of seeing money as a means to overcome the difficulties of finding suitable trading partners in an economy with a division of labour. The basic question is: What kind of ‘environment’ will make rational agents use fiat money? The basic answer is: They will use money if it helps them to overcome market frictions in ways that promise improved welfare. Since the frictions introduced to make money ‘essential’ in this way are related to the functions of money as traditionally described, it is worthwhile to point out approximately which frictions correspond to which functions:

- Money as a means of exchange eases the double coincidence of wants problem by splitting the simultaneity of give and take in barter into the separate transactions of buying and selling that require only the single coincidence of wants – if everybody wants money.
- Money as a means of accounting simplifies information and communication about past and present transactions and prices.
- Money as a means of payment is a means to fulfil all sorts of obligations specified in laws or private contracts.
- Money as a store of value allows money holders to build bridges between the present and the future in terms of claims on resources held by others, as in overlapping generation models (Samuelson 1958).

The modelling task is to construct an ‘environment’ such that money use becomes a single exit solution for rational welfare maximizing agents. If successful, the model says something like: If a real economic situation is analogous to the environment specified in the model and if agents are rational, they will use fiat money – if it is available. Money is not explained as an emergent property, having its origin in the interactions of such agents. Rather, it is offered to them as a tool by who knows whom – the great game designer? Whatever explanation

results is of the modest genre: It can be pointed out that money use delivers an equilibrium in which none of the agents has an interest in changing the situation as long as all others do not change it either.⁵

With these models, neoclassical monetary theorists have moved away from the Walrasian framework by paying attention to time consuming monetary transactions, their form as bilateral matches and their precondition in terms of the expectation of each agent that a sufficient number of other agents will accept fiat money. Nonetheless, there remain problems structurally similar to those of general equilibrium theory when search-theoretical models of money constructed in the quest for micro-foundations rely on some more or less unspecified supra-individual agency that provides essential ingredients for the functioning of the decentralized market with fiat money. For example, in the 'money is memory'-version (Kocherlakota 1998), the Walrasian auctioneer seems to have transmogrified into the non-described background agent that makes available the social memory that contains complete and universally accessible information about past transactions and serves as a substitute institution for money. But both the attention to the specificity of monetary transactions as bilateral interactions and the – if only implicit– recognition that some collective agency is required involve promising steps that may open possible links to heterodox or non-economist approaches to the theory of money.

Given this background, the following controversial issues are taken up in this book: The history, social construction and evolution of monetary systems, the nature of the monetary process, money and the state, and money and crisis.

The history, social construction and evolution of monetary systems

How do we account for the origin of money, or, more precisely, of monetary systems? According to Schumpeter, economists have proposed 'many an argument that presents itself in the garb of purely imaginary "history"'. To avoid such exercises, he suggested that 'logical and historical origins must ... be kept distinct' (Schumpeter 1954: 64). 'Logical origins' arguments are derived from theories, they are less about history and evolution and more about the conditions of possibility of monetary systems. It is no surprise, then, that historians complain about economic arguments that postulate the historical priority of specific functions of money, whether the means of accounting, the means of exchange or the means of payment function, to be the results of 'pure a priori reasoning' without appropriate reference to historical evidence.⁶

This complaint has not prevented far-reaching claims by non-historians about what is purported to be the 'real' history of money. They are still quite popular in controversies about theoretical deductions; see, for example, the rediscovery of Innes (1913, 1914) by neo-chartalists (Wray 2000, Ingham 2004). So there clearly is a need to evaluate the relevance of historical arguments for theoretical explanations (and vice versa). For a start, consult the contributions of historians Renger (Chapter 2 in this volume) on the ancient Mesopotamian economy and

Seaford (Chapter 3) on ancient Greece. They demonstrate that much depends on the concept of money used. For example, the Babylonians regularly referred to 'shekels' of silver or 'gurs' of barley as units of weight when they specified economic quantities, like dues to be delivered, the wage unit, a rent to be paid or a loan to be repaid, with one 'shekel' of silver being equivalent to one 'gur' of barley. But does that mean that a shekel of silver or a gur of barley were the monetary unit? Or should we reserve the term 'money' for the use of a common means of exchange in markets? By describing the specific features of the ancient Mesopotamian economies and highlighting the non-market forms of economic transactions, Renger shows that there were no markets in which money would be used to accomplish exchanges by arriving at prices conditioned by supply and demand. He emphasizes that the use of the Polanyian concept of redistribution is more adequate for understanding this ancient economy than the indiscriminate application of the vocabulary of modern economics. Of course, one can hold that it is a mere terminological issue whether one calls the 'shekel' or any other pre-monetary unit of account 'money'. But, as Seaford argues with respect to Greece, the first known monetized society emerged only after the introduction of the first coins in the sixth century BC. So it makes sense to speak of 'money' only once coins, as circulating means of exchange and payment, are used in everyday economic transactions. Understanding this socioeconomic innovation requires a comprehensive analysis of ancient Greek culture, including religious practices, social norms and the political process.

The least one can learn from such historical accounts is that the terminology used in many debates on the nature and origin of money is not uniform and partly dependent on theoretical frameworks. If, as it is argued frequently outside mainstream economics, the primary function of money is that of a unit of account, you are more likely to apply the term 'money' to such phenomena as the Babylonian *shekel* or the Egyptian *shad* (Aglietta 2002: 36). In contrast, if you follow the explanatory strategy suggested by Carl Menger (1892) and emphasize the function of money as a means of exchange, you will be hesitant to say that anything like money existed before there were markets and price-generating exchanges. This suggests that controversies about priorities of functions of money are beside the point if they do not include clarifications in terms of theoretical frameworks and explanatory goals. But can we really 'explain' the origin of money? Is such an explanation a feasible goal for a theory relying on formalized models? Or is an account of the origins of money only possible as a historical narrative?

Substantially, the underlying issue is whether and to what extent monetary systems must be considered the 'result of human action, but not of human design' (Ferguson). In other words: The state theories of money proposed by neo-chartalists are plausible to the extent that money is the result of human design; the standard neoclassical accounts in the tradition of Menger are plausible if money emerged spontaneously out of early forms of trade (see Goodhart 1998 for the contrast between the two traditions, Schmitz (2002) for a defense of the Mengerian, Wray (Chapter 10 in this volume) for the neo-chartalist position (also Ingham 2004).

However, if one moves away a bit from the heat of such controversy and examines the logic of the explanations suggested, as Aydinonat (Chapter 4) does, it turns out that many of the explanations of the origin of money that are introduced by their authors as competing alternatives are focusing on different aspects of money. To explain how practices of counting and measurement of physical properties of goods – for example, in keeping track of storage in redistributive systems – were extended to include measuring payment obligations may require referring to a set of explanatory factors that are quite different from those used in the explanation of the emergence of a general means of exchange. Thus, what looks like competing explanations of money in general may in fact be complementary explanations of different aspects of money use. But to see that, claims about the ‘logical priority’ of one or the other function of money have to be dropped. The point of contention usually is whether the means of accounting (Keynes and the chartalists) or the means of exchange function (Menger, Jevons and the neoclassical tradition) has such priority. But again, if money objects usually can serve multiple but interdependent functions, it is not clear why these functions should be ordered according to some scheme that assigns priority, once and for all, to one of them.

Understanding the building blocks of monetary systems could also benefit from comparing economic theories to theories in other disciplines that propose explanations of the constitution of social facts. John Searle’s ‘construction of social reality’ (1995) is an important philosophical clarification of the nature of social facts that can be used for rebuilding the theory of money with more consistent and adequate conceptual tools. John Smithin (Chapter 5) proposes an architecture for such a theory that relies on an ontology of social facts. As Searle suggests, social facts rest on collective intentions. When we say that this physical object ‘green piece of paper’ is a ‘dollar bill’, we refer to the physical object as a carrier of a basic meaning that is shared by all dollar users. The physical object X, the green piece of paper, counts as Y, a dollar bill, in C, the United States. How does the collective intention underlying such ‘counting’ come about? Is the requisite uniformity of attitudes and expectations among agents brought about by convention, contract or imposition from above? With the question of how either the state or money can be explained starting from individuals, their beliefs and desires as a starting point, Cartelier (Chapter 6) compares the Hobbesian contract theory of the state to recent search theories of money. He finds that both have conceptual foundations that are opposites but at the same time complementary in their inability to give a coherent account of how either the state or money as social facts can be derived in a framework of methodological individualism. The difficulty is not, to say that ‘Money is money simply because it is used as money’ (Iwai 1997: 29). Rather, the difficulty is to explain how autonomous individuals pursuing their own interests come to agree to use a set of objects as money – or, if you want, a more or less imagined common reference object as a unit of account. As Cartelier indicates with his instructive comparison of theories that, on the surface, appear to be concerned with very different matters, this problem cannot be avoided in economics. And some help

can be expected from philosophy and, perhaps, political science and sociology in so far as they share this type of problem. These are good reasons for arguing that the theory of money should be based on a broad interdisciplinary understanding of social processes and institutions (as Smithin suggests a theoretical edifice that combines social ontology, economic sociology and heterodox monetary theory).

The monetary process

Leaving the 'origin'-question behind, we can take money as a given institution and analyse monetary transactions and their consequences. Purchases and sales are basically performed by pairs of agents and are subject to a local constant sum condition. This simple observation has not fully entered theories of money that are conceptually linked to the Walrasian framework (see Herr, Chapter 13 in this volume, for a critical description). In Walrasian competitive equilibrium markets are cleared once and for all through multilateral, centralized exchanges – with nobody spelling out how such a feat can be accomplished in physical terms. More recently, however, sequences of pair-wise transactions have been explicitly introduced in search models to demonstrate the 'essentiality' of money. This peculiar form of monetary transactions also is the starting point for work on money in 'Econophysics' (Yakovenko, Chapter 7). For seller and buyer, the sum of jointly owned money remains the same before and after the transaction and this serves as an analogue to the conservation principle in physics. According to the simulation models proposed in 'Econophysics', the form of monetary transactions by itself leads to starkly unequal distributions of money holdings. This distributional dynamic can be taken as the background for a central problem of market economies that Philip Mirowski has aptly described as the problem for market economies to maintain the 'working fiction of a monetary invariant' (Mirowski 1991: 581). Older monetary systems can be understood as attempts to convince participants of such invariance by tying the social construct money to extra-social objects such as precious metals or other natural givens. But as a social construct, the monetary system is a bootstrap phenomenon (Iwai, Chapter 14). Today, on the one hand, central banks are held responsible for the maintenance of this 'working fiction', on the other hand, the fact that markets have become global and national currencies and derivatives based on them have been commodities traded in huge volumes leave central banks without appropriate means of intervention (Bryan and Rafferty, Chapter 11). So everyday practices that imply stability in monetary calculations and strategies seem to rest on blending out contrary information, perhaps as a result of uncertainty suppression.

To explicitly take into account the form of monetary transactions is not only important for analysing monetary conservation and inflation – when the conservation does not succeed – and the unequal distribution of money holdings, it is also a way to settle some other traditional controversies in monetary theory. One enduring issue has been the alternative between monetary theories of credit vs. credit theories of money (Ganssmann, Chapter 8).

This alternative was introduced by Schumpeter who opted for the credit theory of money. It is in need of some re-examination, both with respect to its theoretical foundations and in the light of historical research. Is the proposition that 'all money is credit' vulnerable to the objection that early monetary systems worked without monetary forms of credit? The perennial practices of simple borrowing and lending can be seen as parts of reciprocal relations governed by norms of mutual help, whereas monetary forms of credit involve money as a means of payment. But this distinction is frequently held to be redundant if one starts from the premise that all money is credit, implying that all monetary transactions are also credit transactions. As Ganssmann argues, the latter proposition misses a decisive difference between monetary transactions with cash payments and credit transactions. Whereas cash payments are final in the sense of closing the relation between buyer and seller, credit relations persist from the time of agreement on a loan until final payment is performed. In cash payments only the money counts, not the persons involved, while before granting a loan, the lender wants personal information about the borrower's ability and willingness to repay. Because of their duration, credit operations are typically recorded in writing, while 'cash leaves no paper trail' (Shubik 1999, I: 236).

For the theoretical distinction between money and credit instruments that Schumpeter was dealing with, the decisive question appears to be whether and to what extent credit instruments can perform the functions of money. The ultimate test for this is a severe general liquidity squeeze, as it was experienced in the 2008 financial crisis. This is an issue that – among others – poses the question of a potential heuristic function of crises (see Chapters 12–14) for monetary and credit systems. Carruthers (Chapter 9) examines the nature of the recent crisis with regard to the sudden shifts in the liquidity of recently created financial instruments and the role played by institutions in the creation and marketing of these instruments. Clearly, one lesson of the crisis is that, as networks of credit relation falls apart, money as cash (re-)gains a unique role that points – against Schumpeter – to the continuing need to maintain the distinction between money and credit instruments in the theory of money. Interestingly, this distinction is also made in search theories where credit is excluded by assumption in the efforts to demonstrate the 'essentiality' of money by postulating the anonymity of trading partners and the impossibility of monitoring and binding commitments. This underlines that the specificity of credit as opposed to money is that credit requires knowledge of the other person.

Money and the state

Referring to Knapp's 'state theory of money' and its take-up by Keynes, neo-chartalist economists have elaborated the most comprehensive heterodox approach to the theory of money. It is frequently linked to the 'all money is credit' proposition. Usually, it is not controversial that *modern* money is a 'creature of the state' (Lerner 1947),⁷ in the sense of rephrasing Knapp's original

opening sentence: money is a creature of the legal order. But there are certainly differences when neo-chartalists maintain that *all* money is a creature of the state and when it comes to spelling out the implications of that proposition. At one end, we have successors of Lerner's concept of functional finance with its rather radical implications for public budgets, the public debt and the general idea that 'taxes drive money' (Wray, Chapter 10). At the other end, one may question the extent to which this also holds for the money generated in the private sector when banks create money 'out of nothing' (Schumpeter 1952: 109; cf. Herr, Chapter 14) by providing credit in the form of notes or deposits ('endogenous' money, as opposed to the 'exogenous' money created by the state). As to explaining the role of the state in creating and managing fiat money, the issue remains whether monetary systems and their innovations are better understood 'top down' or 'bottom up'. If we consider the state itself as a collective agent, it is not evident what interests actually govern state monetary actions – unless one wants to take it as self-evident that the state is there to provide for public goods, among them a well-functioning monetary system.

What holds for the state, also holds for central banks. As Bryan and Rafferty (Chapter 11) point out, the two trends of expanding globalization and of innovations in derivatives have not only resulted in monetary theory being left behind, but also left nation states and their central banks clinging to implicitly normative, functionalist concepts of money that are increasingly inadequate as guidelines for monetary policy. So the need for a better theory of money that can incorporate innovations in financial markets has become a practical need. This certainly is also a lesson of the breakdown of the global monetary system in 2008 and the ensuing crisis.

Crisis

'All you need is cash', declared *The Economist* on its title page in November 2008. It is not just this last crisis that raises the question of whether monetary economies regularly generate crises and whether crises should be considered as 'moments of truth' in theories of money. Heterodox economists from Marx to Keynes to Minsky have not only insisted on a non-dissoluble link between money and crisis, but have also seen crises as forms of social regression that reduce elaborate, multi-layered credit relations to simple monetary relations – implying huge sacrifices of real wealth for the sake of reaffirming and re-installing the 'monetary invariant'.

Bellofiore (Chapter 12) builds on Marx to argue that a financially sophisticated economy results not just in the real subsumption of labour under capital in production, but also under financial capital and debt. Adding Minsky's arguments on the nature of money manager capitalism, Bellofiore reads the crisis as the outcome of an asset-bubble driven 'privatised' and paradoxical Keynesianism in which demand and capital accumulation were sustained by indebted households. This led to unsustainable financial and household leverage and ended in an inevitable collapse.