

Critical Realism and the Political Economy of the Euro

by

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INTRODUCTION

The institution of the single currency in the European Monetary Union raises many complex and important economic, political and social issues. The investigation and analysis of those issues raise in turn the question of method in economics and social theory. In this connection, the coming to prominence of critical realism within radical political economy and methodology circles is a welcome development as it seeks to address issues of method. This chapter will, firstly, discuss some of the main problems that critical realism raises for empirical work and inferences alongside an approach adopted to try to overcome these problems; and secondly it provides a concrete illustration of these arguments with reference to a research project on the analysis of the single European currency we have been conducting (see, for example, Arestis, Brown, and Sawyer 2001).¹ It is argued that critical realism provides a method partially appropriate to concrete levels of analysis--illustrated by the example of the attempt to explain the falling value of the euro--but that the critical realist method is inappropriate to the most abstract and fundamental levels of theory--illustrated by the example of the fundamental propositions of Keynes, Kalecki and Marx. This argument draws from, attempts to illustrate and thereby develops, the characterisation and critique of critical realism developed in Brown, Slater and Spencer (2002).

METHODOLOGICAL PROBLEMS OF CRITICAL REALISM

Within the economics discipline critical realism has become associated with debates concerning the validity, or otherwise, of using econometrics and mathematics within economics and social science. Accordingly, this issue is addressed first, if only to state briefly the argument that the focus of debate has little inherently to do with critical realism. The notion that critical realism is somehow inherently 'anti' econometrics has arisen through the important work of Tony Lawson and has been developed by a group of economists originally based at Cambridge University (see, for example, Lawson 1997). These authors appear to argue that econometrics, as commonly practised within the economics profession, should be rejected on critical realist grounds. They also argue that economic theory, as that term is understood within mainstream economics, i.e. mathematical modelling, should likewise be rejected in the name of critical realism. For example, Fleetwood (2001) appears to rule out *any* role for 'functional relations', i.e. relations of the form $y = f(x)$, in economic and social theory.² Pratten (1999) argues that Sraffian economics cannot be compatible with critical realism due to its use of mathematical modelling. Lawson (see, for example, 1997:69-85) appears to rule out multiple regression analysis, i.e. the method that is central to mainstream applied economics. In short, there is a wholesale rejection by some authors of *formalism* in economic and social theory, a rejection that is allegedly based upon critical realist grounds. The term 'formalism' can be taken to refer to the use of 'formal systems', such as those within mathematics and probabilistic statistics.

Though subtle, complex and impressive, we will not discuss the content of the 'critical realist' argument against formalism, an argument that turns on the question of constant conjunctions of events.³ The argument of the Cambridge group appears to make a very strong general claim viz. that *all* formalism is *always* wrong when employed in social and economic theory. This goes way beyond what, in our view, would flow in a straightforward manner from the tenets of critical realism. Not only is this argument contentious from *within* the perspective of critical realism, it is also an argument that goes way beyond what is necessary in order to critique mainstream economics. All that is needed is to argue that formalism cannot be the *main* tool of economics and social theory, *contra* the mainstream view. It should be noted that Lawson (1999: 8) *appears* to affirm that critical realism, on his interpretation, does not lead to the blanket ban on formalism that he has sometimes been interpreted as advocating. However, anyone who has discussed specific cases where formalism has been employed, will find that the Cambridge group seem to be totally against any specific instances of econometrics or mathematical modelling in practice. Undeniably the *impression*, at least, has been given that the group rules out formalism *tout court*. Hence, the articles defending the use of econometrics and more generally formalism within a critical realist framework continue to grow in number. Much ink has by now been spent trying to show that, within a critical realist framework, there can be a role for formal techniques, albeit not necessarily the central role as found within mainstream economics (many of the contributions to this book provide relevant examples).⁴ This illustrates that the argument claiming each and every single instance of formalism should be rejected, or which in practice appears to lead to the latter view, has led debate away from issues that are more pressing, such as that regarding the contribution of method to substantive economic theory and policy. These more pressing issues are discussed in the remainder of this chapter.

The key issues that critical realism (as opposed to a specific group of critical realists) raises are more general than simply the question of formalism. Critical realism offers important and useful insights to the practicing social researcher. Unlike the best-known (to economists) philosophies of science, or the current focus on 'rhetoric' and 'post-modern' stances in general, critical realism emphasises that real social structures exist (not merely agents, and not at all 'rational economic man') and that they mesh together in complex but potentially identifiable ways. In other words, the social (including economic) world is a 'stratified' one made up of complexly 'layered' social structures which are reproduced and transformed through agents. Method in economics and social science should be adapted to the peculiarities of this object at hand, rather than simply ape the methods of the natural sciences.⁵

However, a key problem is evident as soon as the attempt to theorise on the basis of critical realism is made. It soon becomes clear that the *specifics* of the social 'vision' or ontology that it advocates are elusive. Just what does it *mean* to say that the social world is made up of stratified social structures? How does one go about uncovering these structures and theorising about them, their 'stratification' and about the events that they co-generate? Answers are difficult to come by from within critical realism. To make matters worse, the traditional view within critical realism is that the lack of methodological specificity is a *virtue* of critical realism, that is to say critical realism is 'ontologically bold and epistemologically cautious' (Bhaskar 1989: 176). Critical realism 'underlabours' for the social scientist, clearing away, for example, the dogma that all theory must adopt formalism, but it has little positive suggestion to offer by way of method because few general methodological precepts exist. Rather, on this traditional critical realist view, it is up to the social scientist to adapt methods to the specific object that interests them, to theorise the stratification of particular social structures and specific instances of their reproduction and transformation by social agents.⁶

The only such general methodological advice that is offered by critical realism reflects this cautious approach towards epistemology and method. The extremely general method of 'retroduction' is advocated. According to this method, scientific explanation proceeds by way of hypothesising 'deep' social structures and mechanisms, from initially given 'premises'. These 'premises' are not provided by the scientist, rather they are apparent phenomena in the object of study. For example, words and concepts in use in everyday discourse may provide the starting point even where the word may take on a more precise meaning in scientific analysis and where the conceptualisation evolves. Money provides an example. It is a term in common use and for which statistical measures exist, but where economists have continued to use the word (albeit with definitions which differ between themselves and from the commonly used definitions) and have conceptualised money in a range of ways. More generally, the premises for hypotheses may be puzzling or otherwise surprising occurrences, such as, for example, the long-standing differential productivity records of the UK and Germany (Lawson 1997, in particular, emphasises the role of surprise as a catalyst for social research). The extreme generality of this method is evidenced by the fact that very little guidance is offered as to *what* premises the social scientist should employ nor *how* hypotheses from these premises should be generated, beyond generalities such as 'use real rather than bogus abstractions', 'employ analogy and metaphor'. The problem is that, even if one accepts that retroduction is, or should be, employed then it is the *chosen premises* of retroduction that are crucial. Clearly, there are *lots* of given possible premises, lots of things known, and hence the crucial problem is how to *abstract* from things known, and conversely how to *interconnect* all that is known. It is therefore particularly worrying that the role and nature of abstraction is under-explored within critical realism (see Brown et. al. 2002). If science is to proceed by way of retroduction then it must first 'abstract' premises from the complex social world from which to begin. How is one to undertake 'real abstractions'? Critical realism offers little in the way of advice. How, furthermore, is the social scientist to reincorporate the facets of the social world that are abstracted from? Answers to these questions are vital if the stratification of structures and mechanisms within the social world is to be comprehended. But critical realism offers no help; it is all up to the practising social scientist!

AN ALTERNATIVE PERSPECTIVE

Brown, Slater and Spencer (2002) suggest that the critical realist notions of retroduction, real abstraction, and so forth, do have some resonance at relatively concrete levels of analysis where it is indeed the case that little by way of general advice can be given to the investigator. But at more abstract and fundamental levels where, for example, one considers the nature of the market economy, or the nature and impact of 'globalisation', or the theorisation of global economic crises (indeed economic crisis in general), and more generally the nature of capitalism as such, they argue that critical realism is not only of little use but *wrong*. At this level the investigator is by no means engaged in *hypothesising* some new entity or structure; rather, quite to the contrary, the investigator attempts to *fathom the mode of interconnection* of the vast array of practices, institutions and structures that are already quite obviously known to exist. We know firms exist, we know there are markets, prices, crises, States, interest rates, commodities, wars, etc. *How do they interconnect?* This is a very different question to that which critical realism suggests we pose. It is not a matter of what particular unknown structure exists to explain this particular given phenomenon, rather, what is the interconnection of the vast array of known structures, mechanisms and events?

At one level it might appear that the conception advocated here, viz. the social scientist as, fundamentally, an 'abstractor' and 'interconnector' of *given* social structures, mechanisms and events is only superficially different from the critical realist view that social scientists employ retroduction, i.e. 'hypothesis' of new, previously unknown social structures and mechanisms. For, it could be argued that the 'hypothesis' of an unknown social structure or mechanism is simply the critical realist terminology for the procedure advocated here, viz. the interconnection of the vast array of given social material. However, retroduction is supposed to proceed from just one or two given premises, chosen by the investigator. The question posed, according to this view, is one that involves only the specific phenomenon that has aroused curiosity. It is not a question that is concerned with interconnection or synthesis of a whole range of different phenomena; all other phenomena are abstracted from. Given only the surprising phenomenon of interest, the investigator is then recommended to hypothesise, perhaps using analogy and metaphor, a structure that will specifically account for the phenomenon in question. Thus, (i) Critical realism provides little guidance as to how to 'do' abstraction

except by way of finding a 'surprising' phenomenon and hypothesising specific structures (in abstraction from other structures) to account for this phenomenon; (ii) interconnection, or synthesis, occurs only *after* abstraction and retrodution have taken place; it is *not* itself a part of this process, on the critical realist account.⁷ Hence retrodution is inappropriate for the fundamental level of analysis, where the investigator must fathom the interconnection of a vast array of known social material. These themes will be illustrated and developed via the example of the project on the single European currency.

ANALYSIS OF THE SINGLE EUROPEAN CURRENCY

Our euro project has been ongoing for some four years now. A book (Arestis, Brown, and Sawyer 2001) and many journal articles and book chapters have been published thus far, all examining various facets of Economic and Monetary Union (EMU) within the European Union (EU). In what follows we focus on Arestis et. al. (2001), as this book is representative of the project as a whole. First some of the features of our analysis are highlighted, followed by a brief summary of the main conclusions of the book. Second the way in which our analysis and conclusions illustrate the argument above will be drawn out.

The analysis of the formation of the European Monetary Union contains a range of features which should be highlighted. First, it is concerned with the analysis of a unique and major event (the formation of EMU) as a result of which the future cannot be seen as similar to the past. Thus those methods which rest on a basic similarity between past, present and future can only be used sparingly if at all.⁸ Second, the creation of the euro as a virtual currency in 1999 and as a 'real' currency in 2002 was viewed as the culmination of long process of economic and political integration within a range of European countries (beginning with the six countries which were the original signatories of the Treaty of Rome and expanding to the current 15 members of the European Union). The analysis had to show at least some awareness of the political and institutional developments leading to the formation of the EMU. Third, the investigation was also intended to be forward looking, concerned with questions such as the desirability of the UK's membership of the EMU and alternative policy arrangements governing the operation of the EMU. This part of the investigation required a theoretical orientation (so as to judge desirability or otherwise of UK entry) and seeking to forecast the future (under the assumption of continuation of the present institutional arrangements and under alternative arrangements). Here, particularly, we sought to clearly state the theoretical propositions by which the EMU and UK membership was to be judged, and to make clear the nature of the theoretical framework we were using. This framework could be portrayed as Keynesian with an emphasis on the role of aggregate demand and the operation of the forces of cumulative causation. Fourth (as already illustrated in part) numerous methods were employed--historical analysis of the process of economic and monetary integration within the European Union, the development of alternative policy proposals, the use of descriptive statistics, some use of econometric (multiple regression) analysis etc. One of the main conclusions we reached was that the single currency *as currently implemented* does not promise to deliver continuing non-inflationary economic growth in the European Union, and the book presents a sustained argument to that effect. We argue that the economic impact of the euro and its accompanying institutions, the European Central Bank and the Eurosystem, is likely to be deflationary and destabilising; that the political impact is profoundly undemocratic; and that the social consequences are thus likely to be deleterious. We do not, however, argue that the concept of a single European currency is inherently flawed. On the contrary, we propose a Keynesian alternative to the institutions that currently underpin the euro.

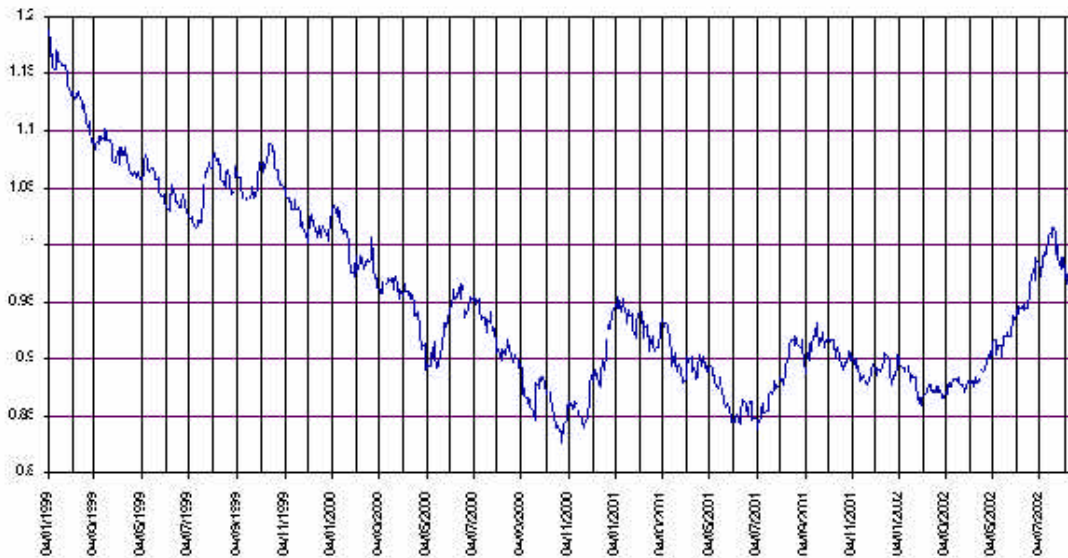
Chapter 2 adopts an historical approach, setting the inception of the euro in the context of the post-war history of the attempts to forge economic and monetary union within Europe. The point is made that, when, in the context of deregulated capital markets and the Single European Market the institutional structure that currently underpins the euro was laid down, neo-liberal monetarist ideas exerted an important influence on policy. At the same time the Bundesbank was considered a model for the European Central Bank. Thus, the chapter stresses the historical reasons for the fact that the institutional structure accompanying the euro conforms to what Arestis and Sawyer (1998) have termed the 'new monetarism'. Chapters 3 and 4 broadly examine the fiscal and monetary aspects of the institutions surrounding the euro. The relevant literature within economics, both empirical and theoretical, is critiqued from the particular Keynesian perspective adopted and developed within the project. Chapter 5 examines the individual money demand functions within the 11 countries that initially entered the single currency in order to highlight the disparities between these countries.⁹

Chapter 6 examines the impact of the euro since its inception in the context of the search for an explanation for its declining external value. We show how the most recent evidence concerning the macroeconomic impact of the euro lends support to the arguments of the previous chapters and, in so doing, we are able to provide an empirically robust explanation for the fall in value of the euro. In the literature, the steadily weakening euro has often been attributed to the peculiar strength of the US economy, rather than to any inherent difficulties of the imposition of the single currency in Europe. If the eurozone itself is focused upon then this is only to stress the 'inflexibility' of European markets (particularly the labour market). We find the widespread notion that labour market inflexibility is at the root of the so-called 'eurosclerosis', highly unconvincing. Instead we argue that, it is not US strength alone, but this strength in combination with structural weaknesses of the eurozone *endogenous to the imposition of the euro* that has caused an outflow of direct investment capital, leading to the exchange rate decline. By 'structural weakness' we do not refer to inflexible labour markets but to the situation analysed in previous chapters: the imposition of the single currency, without the appropriate (Keynesian) institutions, onto an area which is in a divergent state, with low growth and high unemployment. The most recent evidence shows that the divergent state of the eurozone has persisted, and may even have worsened, since this imposition. Thus, the argument that the institutional structures underpinning the euro must be replaced by our proposed Keynesian alternative is well supported by the recent evidence on the impact of the euro, and goes some way to explaining the instability of the euro exchange rate.

How, then, does the euro project illustrate the arguments regarding method and critical realism developed above? First, we attempt to explain how the project illustrates the apparent utility of critical realism at the more concrete level of abstraction where the

falling external value of the euro is located. Second, we elaborate on how the more fundamental features of the project do not readily lend themselves to a critical realist interpretation.

Figure 1. Daily Exchange Rates: U.S. Dollars per Euro



Whilst undertaking the task of trying to explain the falling external value of the euro (see Figure 1) we became struck by the resonance between the research processes that we were going through and the critical realist description of, and prescription for, social science. Firstly, consider the object or phenomenon under investigation. The falling value of the euro, ongoing for over one year as we began work on it, had occasioned much surprise amongst economists and commentators more broadly. Many, especially the proponents of the euro, such as Buiter (1999), had expected the euro to *rise* significantly from its opening rate of \$1.18. In the event the euro had fallen and continued to fall way below what most economists considered a value that it 'should' have had, had it behaved according to economic 'fundamentals' (such as purchasing power parity, a rate consonant with trade balance, or similar). How does this relate to critical realism? It appears to fit very closely to the critical realist notion of the first stages of social scientific investigation, especially as developed by, for example, Lawson (1997). This is a clear example of what Lawson calls a 'demi-reg'. For over one year the euro had been falling regularly. This was not a strict regularity because the euro obviously did not fall every day. Rather, it was a 'rough and ready pattern of events': when put on a graph one could clearly see a general pattern of a steadily falling euro through time. What is more, on Lawson's critical realist account, such demi-regs often take the scientist by surprise and it is this element of surprise that may be the catalyst for scientific investigation, the spur to search for an explanation of what appears *prima facie* both significant and surprising. This seemed exactly to describe the research situation into which we, along with many other economists, were placed. The 'demi-reg' of a continually falling euro had taken us, and others, by surprise or had at least occasioned our interest and initiated the search for the 'underlying' causes of this puzzling 'surface' phenomenon.

Just as it appeared that the starting point resonated strongly with critical realism, the subsequent process of enquiry also fitted into this framework. Reading the relevant literature, and examining the relevant empirical evidence (for example, eurozone and US national accounts, as well as economic performance indicators), it seemed clear that we were engaged in a process of trying to unearth, to 'hypothesise', the structural cause of, or condition for, the manifest demi-reg of the falling euro. We aimed also to evaluate against the evidence the worth of our hypothesis relative to competing hypotheses. This was indeed what many other economists were trying to do. It was clear too that the mainstream insistence upon formalism, both in terms of econometrics and of mathematical modelling, was detrimental to the collective effort of trying to explain the euro's fall. There was arguably *some* use in the econometric work. This work suggested, for example, that the euro was indeed undervalued relative to 'fundamentals'. But there was quite obviously (to anyone but a dyed-in-the-wool mainstream economist) too much emphasis upon such econometric techniques to the detriment of other empirical methods (for example case study work) and realistic theory development, i.e. development of an adequate theory of the *causes* of the manifest demi-reg in question (the decline in value of the euro). There was also, of course, much in the way of mathematical modelling, or in mainstream parlance, 'economic theory'. Again there was arguably some use in these models, in that they explored quantitative implications of some more or less plausible hypotheses as to the relationships between a few of the variables involved (for example, the relationship between interest rates and exchange rates as in the interest rate parity result or in 'overshooting' models). However, by no means did they give the basis for hypothesising the causal mechanism required and, in fact, were fundamentally misleading through their incorporation of the dominant and false theoretical perspective of new classical or new Keynesian economics (i.e. the perspective that 'markets work', at least in the medium to long run, so that, for example, monetary policy has real effects only within a two year horizon, after which its effect is purely nominal).

The character of our solution to the problem of what caused the euro to fall also corresponds to critical realist notions. Consonant with a number of other authors, we argued that an important *proximate* cause was the large magnitude of capital outflows from the eurozone to the US and elsewhere. This hypothesis fitted in with the available evidence better than other hypotheses, for example the

timing and magnitude of the outflows was consonant with the timing and magnitude of the exchange rate fall, whereas the timing and magnitude of interest rate differentials was not. However, this was only one possible mechanism at work and as yet lacked structural grounding: what combination of social structural factors and individual activities combined to sustain the falling euro through causing, *inter alia*, capital outflows from the eurozone? Here we suggested that the flaws in the institutional structures surrounding the euro, detailed in previous chapters of our book and empirically supported in chapter 6 by examination of the latest evidence confirming the *divergent state* of the eurozone, underlay investors' perceptions that the eurozone was weakened by the single currency. These perceptions led to the *systematic* (system wide) outcome that market participants invested outside of the eurozone. Investors, and the media, often recite the mainstream mantra that the lack of 'labour market flexibility' is the reason that the single currency is inappropriate. Such sentiment, we suggested, may be in part an attempted expression of our own diagnosis of the problems of the eurozone, based on our realistic economic theory and analysis but, we further suggested, this attempt is irrevocably distorted by the hegemony of mainstream economic theory.

To summarise, a combination of social structures, mechanisms and their reproduction by agents, all *endogenous to the inception of the euro*, were hypothesised to account for the fall in its external value. The hypothesis was shown to be robust against the evidence in a way that alternative hypotheses were not. This illustrates how, at the relatively concrete level at which our object of explanation was pitched, viz. that of the declining external value of the euro, the critical realist method has a strong resonance. However, there were more abstract and fundamental aspects to the attempted explanation of the fall in value of the euro, aspects *not* readily accommodated within the critical realist framework. These are described below as an illustration and development of the critique of critical realism detailed above (and developed in Brown et. al. 2002).

The question regarding the external value of the euro was addressed as part of the broader euro project as a whole. This broad project was explicitly Keynesian in character drawing upon, and forming part of, a specific approach to radical political economy. The analysis of the weaknesses of the eurozone that were endogenous to the inception of the euro, necessary for the explanation of the falling euro, drew crucially upon this abstract and fundamental view, in opposition to new classical and new Keynesian economics (and specifically in opposition to 'new monetarism'). These theoretical preconceptions were particularly relevant when it came to: (i) the policy proposals developed, whereby it is recognised that monetary and fiscal policy can and do have real effects in the long run; (ii) the approach to evaluating the Maastricht convergence criteria (although we also drew upon the literature on optimal currency areas); (iii) the approach to evaluating convergence/divergence subsequent to the establishment of the euro in January 1999; and (iv) the general proposition that the unfettered capitalist economy is fundamentally crisis prone. The belief that unfettered capitalism is crisis prone is a theoretically grounded proposition, one drawn from Keynes, Kalecki and Marx.

This illustrates that, in practice, theorists do not start by 'retroducting' from some surprising 'premise', rather the theorist is guided by more abstract and fundamental theoretical propositions, as in our case provided by Keynesian, Kaleckian or Marxist theory. Thus, if it is to be argued that critical realism is fully consonant with our research then it must be argued that Keynes, Kalecki and Marx employed an approach consonant with critical realism. Do the fundamental and crucial features of the theories of the above mentioned 'greats' of economics truly correspond to critical realism? In particular, is it really the case that these economists arrived at their results via a critical realist method (even if that method is very general)? Obviously, such questions are the subject of a great deal of ongoing research which cannot be reviewed in detail here.¹⁰ Below, the argument of Brown et. al. (2002), already drawn upon above, will be developed, in order to address these questions.

Instead of identifying a particular form or demi-reg to be explained, and then 'hypothesising' a previously unknown structure to account for this form or demi-reg, it seems more plausible to consider that the fundamental propositions put forward by Keynes, Kalecki or Marx are gained from fathoming the general mode of interconnection of the manifest and essential features of the economy and society. When working at this abstract and fundamental level, the criterion of science must be the degree to which the theory developed successfully accounts for the many fundamental features of the economy, features *already known* to the investigator and so in no need of hypothesis. They are also features that are *essential* to the economy and so in no way is there need for hypothesis of *yet more* hitherto unknown essential structures and mechanisms. It is especially important to reiterate that the critical realist procedure is supposed to entail a method whereby *first* abstraction takes place: a form or demi-reg is identified and structure hypothesised to account for it. Only *secondly* may synthesis occur, where the theorist attempts somehow to piece together all these myriad appearances and hypothesised structures and mechanisms. But this is manifestly not what occurs at the fundamental level of theorising. Rather, there is an attempt to 'see the wood for the trees', to *fathom the interconnection* of masses of *known* structures, mechanisms and events. In the case of the euro, the researcher must have an ability to interconnect commodity, money, profit, wages, interest, State, foreign trade, world market, etc., and this process of interconnection or synthesis by no means occurs subsequent to a *prior* process of abstraction and 'hypothesis'.

For example, the notion of the circular flow of income is an attempt to fathom how various known individuals, mechanisms and structures (consumers, firms, prices, wages, etc.) are interconnected through monetary and real flows, and thereby constitute the economic system as such. On the basis of even this elementary and abstract conception of the mode of interconnection of the economy, it is possible to elaborate the proposition that planned savings need not equal planned investment, such that the possibility of demand deficiency exists. This is a simple illustration of how aspects that are originally known to the theorist can be comprehended in a *new* light once their mode of interconnection is fathomed. Abstracting the mode of interconnection of structures, mechanisms and events, thus, does yield *new* knowledge to the investigator, but this is not some previously unknown entity, rather it is a new found comprehension of the function of given entities or aspects within the system that they constitute. Wages, for example, can be grasped as not merely costs to individual firms but as a vital component of aggregate effective demand within the system overall. This is due to a comprehension of the mode of interconnection of wages with the many other manifest aspects of the economy, rather than to hypothesise from a surprising demi-reg. Brown et. al. (2002) similarly argue that Marx's

fundamental propositions, such as the existence of exploitation, stem from an attempt to fathom the mode of interconnection of crucial factors such as the distinction between labour and labour power and the monopolisation of the means of production by the capitalist class. Wages, in this case, are newly revealed to mask exploitation. Thus Keynes, Kalecki and Marx are not, at a fundamental level, hypothesising new entities from one or two demi-regs, rather they are, in sometimes very different ways, and with correspondingly different results, focusing upon (abstracting) the mode of interconnection of the manifold economy and society.

In this way, Keynes, Kalecki and Marx were most fundamentally involved in abstracting from, and simultaneously attempting to fathom the interconnection of, a vast array of known social material.¹¹ This is where their great merits lay, rather than in some ability to 'hypothesise' yet more entities, previously unknown, and out of sight. Keynes, Kalecki and Marx provide a way into abstraction and interconnection, they give us an *orientation*. Given that basis, which is the crucial aspect of investigation, then at a more concrete level, as illustrated above by the example of the falling value of the euro, one can see that there is some role for *ad hoc* factors such as surprise, and for speculative hypotheses of the hitherto unknown, as advocated by critical realism. Thus, one can see the appeal of critical realism, its resonance with day to day social scientific activity, whilst also appreciating that critical realism does not actually provide the correct account of, or prescription for, the features of science at its most fundamental levels. In short, critical realism blurs the distinction between different levels of abstraction. At a more concrete level, illustrated above by the example of attempting to explain the falling external value of the euro, the notion of retroduction, involving 'hypothesis' and 'test', where abstraction occurs prior to synthesis, carries some degree of plausibility. At the fundamental level, however, which sets the context for concrete research, a very different process involving, from the outset, *interconnection* or *synthesis* of a vast amount of known material occurs. This has been illustrated by the example of the theory of the capitalist economy employed in the euro project.

CONCLUDING REMARKS

Our work on the European Monetary Union proceeded at several levels. The analysis was built on a basic conception of the nature of the capitalist economy within the tradition of radical political economy, but one which recognises the importance of the changing specificities of capitalism such as the evolving economic and monetary integration within the European Union. But it was also necessary to understand the political thinking which surrounded the construction of the European Monetary Union and its institutions which we identified and labelled as a 'new monetarism'. Further, as we sought to engage with the alternative analyses of, for example, the declining value of the euro, it was necessary to understand the analytical frameworks on which the discourse surrounding the euro is based. It has also been the case that our analysis of the European and Monetary Union occurred at differing levels of abstraction. An approach such as critical realism which, by its own admission, suggests a highly general method valid across many different levels of abstraction, leaving everything else up to the practising social scientist, is undoubtedly going to offer little help to the investigator. Furthermore, it is likely to be misleading or wrong at one or other level of abstraction. Our work on the European and Monetary Union has been drawn upon in order to illustrate the argument that the critical realist method is inappropriate to the fundamental level of abstraction, where the key propositions of economics and social theory are formulated, though it is partially applicable to more concrete levels. This applicability, when combined with other merits of critical realism (such as its stressing of a layered social ontology), may explain, and to some extent legitimise, its popularity amongst radical economists and amongst other social scientists. An alternative method dubbed 'systematic abstraction' that is, unlike critical realism, appropriate for the abstract and fundamental level of theory is developed in Brown et. al. (2002). In this chapter we have sought to illustrate and develop the characterisation and critique of critical realism offered by Brown et. al. (2002) by reference to our work on the European and Monetary Union.

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Notes

1. This project has been financed by the Levy Economics Institute of Bard College, New York. We are grateful to the Levy Institute for generous financial support, especially to its director Dimitri Papadimitriou.
2. Fleetwood (2001: 202) writes, '[m]y central thesis is that the use of functional relations and laws in economics is fundamentally misconceived'.
3. Williams (2000) is right when drawing upon an interpretation of Hegel, to see formal logic as 'transcended' by, rather than abolished by, *dialectical* logic. This does not entail the complete *abolition* of formalism that the Cambridge group seem to *favour*, but it still stresses that it (formalism) cannot be the *main* tool of social and economic theory, that at best it can play a supporting role.
4. Outside of the field of economics, debates regarding critical realism and formalism have also occurred. Doug Porpora, for example, has long argued that critical realism is compatible with multiple regression analysis under certain circumstances in social science (see Porpora 2000).
5. Rotheim (1999) elaborates on all the various ways in which critical realism is useful and, in particular, emphasises how critical realism ties in with Post Keynesian economics.
6. Brown (2001) elaborates on the underlying rationale behind this critical realist stance, namely the critical realist distinction between a 'scientific ontology' and a 'philosophical ontology'.
7. As Lawson writes, '(t)he point of abstraction is to individuate one or more aspects, components, or attributes and their relationships in order to understand them better. *Once this has been achieved* it may be possible to combine or synthesise the various separate understandings into a unity that reconstitutes, or provides a better understanding of, the concrete' (1997: 227, emphasis added).
8. The only example which comes to mind would be to use the projection of past experience as a counterfactual with which the present or future (eventually when it has become the past) can be compared.
9. In keeping with the argument above, the use of econometrics is but one facet of the euro project as a whole and *not* one that critical realism offers anything but the most general of guidelines for, hence it is not discussed below.
10. For the debate regarding Keynes and critical realism see, for example, Lawson (1994) and Parsons (1996). The relationship of Marx to critical realism is debated in Brown, Fleetwood and Roberts (2001).
11. Note that, at this fundamental level, abstraction involves both analysis and synthesis: the theorist focuses upon (analyses) the mode of interconnection (or synthesis) of the object under study. Brown et. al. (2002) elaborate upon this point, a point that is characteristic of dialectics.