The Continuing Muddles of Monetary Theory: A Steadfast Refusal to Face Facts

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Abstract

There has been a remarkable gulf between mainstream monetary theory and reality in recent decades.

Amongst the worst examples are:-

(1) IS/LM: the monetary authorities set the monetary base, and the interest rate is determined in the market;

(2) The monetary base multiplier of bank deposits, and the role of reserve ratios;

(3) The current three equation neo-classical consensus, which not only assumes perfect creditworthiness for all agents, but also an essentially non-monetary system, e.g. no need for banks;

(4) The standard theory of the evolution of money.

Monetary economics can only get better, but it has a long way yet to go.

A. <u>Economic Generalisations and Reality</u>

Lionel Robbins[1] wrote in his book entitled, <u>An Essay on the Nature and Significance</u>

<u>of Economic Science</u>, (3rd edition, 1984), that,

> "It is characteristic of scientific generalisations that they refer to reality.
> Whether they are cast in hypothetical or categorical form, they are
> distinguished from the propositions of pure logic and mathematics by the fact
> that in some sense their reference is to that which exists, or that which may
> exist, rather than to purely formal relations." p. 104.

What is, alas, remarkable has been, and indeed remains, the gulf between mainstream

monetary theory and the practical operations of policy by Central Banks. I start by

comparing the assumption that Central Banks set the monetary base, (with short term

interest rates being market determined), with the reality that Central Banks set the

short term interest rate, (so that the money stock, M, and the monetary base, H, are

endogenously determined). This error led on naturally to the further mistake of

assuming that the money stock (M) was set via a monetary base multiplier. This

multiplier analysis abstracted from virtually all the key variables actually affecting M,

which, besides the authorities' policy, include the private sector's demand for loans,

commercial banks' profitability, capital adequacy, risk aversion, etc.

Although such errors had been under attack from heterodox economists for decades, it

was not really until a mainstream economist, John Taylor, argued that the Fed both

had, and should, adjust interest rates according to a particular reaction function that

mainstream positions changed. There was virtually no discussion on the underlying,

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[1] The first version of this paper was produced for a conference held at LSE in memory of Robbins,
and is being published in the conference proceedings (2009).

institutional reasons why Central Banks had always chosen to adjust the interest rate rather than the monetary base.

So, at least, mainstream models, including the ubiquitous DSGE models, now have a reasonably sensible depiction of Central Bank behaviour. But that has allowed them, (gleefully), to jettison virtually all other aspects of monetary and financial behaviour. The trick that allows them to do so – and to assume a model with representative agents – is to assume away all credit risk (and default). This is done under the anodyne, and seemingly technical, assumption of the transversality condition, whereby everyone always pays off all their debts for sure. This assumption does away with all risk premia, with informational constraints, with the need for financial intermediation (banks, etc.) and even really with the need for money.

Given how unrealistic this all is, what is remarkable is how apparently successful such models were in forecasting, and how absolutely successful they were in maintaining their grip on mainstream macro-economics. But such models were, by construction, 'fair weather' models only. When rough weather, in the guise of financial turmoil blew in, in August 2007, I expected one consolation to be a growing appreciation among mainstream economists of the shortcomings of their models. I cannot refrain from quoting, in full, footnote 9 from Willem Buiter's recent Jackson Hole paper (2008),

> "Macroeconomic theory, unfortunately, has as yet very little to contribute to the key policy issue of liquidity management. The popularity of complete contingents markets models in much of contemporary macroeconomics, both New Classical (e.g. Lucas (1975)), Lucas and Stokey (1989) and New Keynesian, (e.g. Woodford (2003)) means that in many (most?) of the most popular analytical and calibrated (I won't call them empirical) macroeconomic dynamic stochastic general equilibrium models, the concept of liquidity makes no sense. Everything is perfectly liquid. Indeed, with complete contingent

markets there is never any default in equilibrium, because every agent always satisfies his intertemporal budget constraint. All contracts are costlessly and instantaneously enforced. Ad-hoc cash-in-advance constraints on household purchases of commodities or on household purchases of commodities and securities don't create behaviour/outcomes that could be identified with liquidity constraints.

The legal constraint that labour is free (slavery and indentured labour are illegal) means that future labour income makes for very poor collateral, and that workers cannot credibly commit themselves not to leave an employer, should a more attractive employment opportunity come along. This can perhaps be characterised as a form of illiquidity, but it is a permanent, exogenous illiquidity, almost technological in nature. Much of the theoretical (partial equilibrium) work on illiquidity likewise deals with the consequences of different forms of exogenous illiquidity rather than with the endogenous illiquidity problem that suddenly paralysed many asset-backed securities markets starting in the summer of 2007. The profession entered the crisis equipped with a set of models that did not even permit questions about market liquidity to be asked, let alone answered.

Much of macroeconomic theorising of the past thirty years now looks like a self-indulgent working and re-working to death of an uninteresting and practically unimportant special case. Instead of starting from the premise that markets are complete unless there are strong reasons for assuming otherwise, it would have been better to start from the position that markets don't exist unless very special institutional and informational conditions are satisfied. We would have a different, and quite possibly more relevant, economics if we had started from markets as the exception rather than the rule, and had paid equal attention to alternative formal and informal mechanisms for organising and coordinating economic activity. My personal view is that over the past 30 years, we have had rather too much Merton (1990) and rather too little Minsky (1982) in our thinking about the roles of money and finance in the business cycle."

But mainstream economists will not give up their preferred DSGE models, their perceptions of reality, without a struggle. Like astronomers seeking to maintain the Ptolomaic system, they are trying to add 'refinements' to make it consistent with the data.[2] As noted in Section D, what they have done is to adjust the policy determined short-term interest rate by an, exogenously determined, risk factor.

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[2] I owe this analogy to Loasby (2008).

B. The IS/LM Basic Model

Most economic undergraduates still get their initial exposure to macro-economics in the guise of the IS/LM model, and it sits at the centre of most introductory textbooks[3], even today; it certainly did so in 1957, when Robin Matthews taught me at Cambridge.

You will recall that,

$$y = I + C \qquad \text{(expenditure)} \qquad (1)$$

$$y = S + C \qquad \text{(use of income)} \qquad (2)$$

So in equilibrium I must equal S;

$$I = f(i), \; f' < 0 \qquad (3)$$

$$S = f(y), \; f' > 0 \qquad (4)$$

where y is output, I investment, C Consumption, S Saving, i the interest rate. When this model was first put together, in the late 1930s, 'the rate of interest' was more commonly taken to be the long-term rate of interest. Now it is usually taken to be the short-term rate[4], to which the long-term rate is related by an expectations-based, no-arbitrage, yield curve.

Also the demand of money must equal the supply of money, which is assumed to be set by the Central Bank, so M_S is given, and in equilibrium
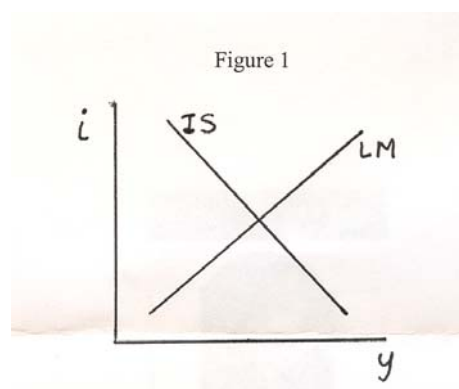
$$M_S = M_D \qquad (5)$$

Since,

$$M_D = f(Y, i), \; f'_y > 0, \; f'_i < 0 \qquad (6)$$


[3] See Begg et al. (2005); Lipsey and Chrystal (2007).
[4] Tim Congdon has frequently noted how the meaning of economic concepts, such as the output gap, tends to migrate over time.

Which gives us:-

Figure 1

This is probably the second most famous diagram in economics.

The basic problem with this formulation was that no Central Bank has ever operated in this way.[5] Instead they set the short-term official policy rate, or maintain a fixed exchange rate peg against the currency of another country, which in turn has a Central Bank which sets a policy rate. This means that at any point of time the LM curve is horizontal.

Figure 2

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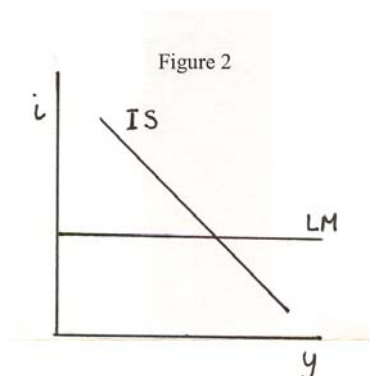
[5] There can be a few historical qualifications to this dictum, but they are sufficiently rare, and doubtful under careful analysis, to ignore.

This means that there was a discrepancy between discussions and proposals about current policy, which were naturally couched in terms of how the Central Bank should vary its policy rate, and theoretical analysis of how it should allow the monetary base to vary. Admittedly in a given context[6], there is a dual relationship so that a given interest rate implies a certain stock of monetary base, and vice versa, but, under conditions of uncertainty, the Central Bank would not know what level of interest rates would be associated with what level of monetary base, and vice versa. That, of course, led on to the famous Poole article (1970), which suggested that the case for choosing to set M or i depended on the relative stability (predictability) of the demand for money and investment functions. It is the case that the instability (unpredictability) of the demand for money functions did help to bring about the demise of pragmatic monetary targetry in the mid 1980s. But none of the monetary target mechanisms, including Volcker's famous non-borrowed reserve target, ever denied commercial banks access to cash, at a predictable interest rate, though in the above case via borrowing at the discount window which involved some small non-pecuniary cost.

The real reason why Central Banks set interest rates, rather than a monetary aggregate, relates to its financial stability objective, not to its macro-monetary price control aim (though the two are, of course, intertwined). Commercial banks cannot operate a fractional reserve system, with relatively low levels of cash and liquid assets, without assured recourse, at a predictable interest rate, to cash on demand, see Goodhart, Sunirand and Tsomocos (2008). Of course, one could run a free-banking system, but this would simultaneously raise the cost of intermediation (as more capital

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[6] Making a strong assumption about the existence of a single unique equilibrium.

and liquid assets would have to be held by the banks), and, most likely[7], the

probability and severity of financial crises.

In another famous article, Sargent and Wallace (1975) demonstrated that, if the policy

interest rate was exogenously set, then the macro-economic system, especially the

price level, would become totally unstable and would explode. Whereas if the Central

Bank set the money stock, the macro-monetary system would be stable, (though, as I

have asserted, the financial system would become unstable, with panics and

collapses). This seemed to overlook the historical fact that Central Banks had been

setting interest rates on a regular basis, and only on some rare occasions did macro-

economic price instability ensue.

The resolution of this conflict between reality and theory was, as is now well known,

resolved by the realisation that Central Banks did not set interest rates exogenously,

but endogenously in response to current, and expected, macro-economic

developments, especially to forecasts of inflation. This was encapsulated in the

Taylor reaction function,

$$i = a + b_1(\pi - \pi^*) + b_2(y) \hspace{3cm} (7)$$

where π = inflation, π^* = the inflation target, y is the output gap. To this is added the

Taylor principle that stability will be achieved so long as $b_1 > 1$. [8]

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[7] In view of the Fed's failure to mitigate the 1929-33 great depression in the USA, this latter claim is debatable.

[8] Actually the stability condition is somewhat more complicated than this, but the simple form will do, and is widely used.

So, at least, this division between reality (Central Banks set interest rates, not monetary quantities) and theory has at long last[9] been resolved, as it must eventually be, in favour of reality.

While the question of what the Central Bank is trying to do has now been settled, the subsidiary issue of exactly how it goes about doing this remains open. The Taylor reaction function relates the present choice of interest rates to the <u>current</u> deviations of inflation from target and output from potential. Because of the long and variable lags in the transmission mechanism from monetary policy to controlling inflation, Central Banks in practice decide on present changes in interest rates on the basis of their <u>forecasts</u> of future deviations of inflation from target, (and of output from potential). Such forecasts are not always easily available, and those that are published by Central Banks are usually ex post, i.e. <u>after</u> the interest rate decision has been taken, not ex ante, i.e. the forecasts that triggered the decision. This can make quite a difference to the econometric results (Goodhart, 2005). While it can be argued that current deviations are an important input into forecasts of future deviations, nevertheless the discrepancy between the way that the Taylor reaction function assumes that Central Banks behave and the way that they actually do so has distorted much research and analysis in this area.

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[9] Taylor's first article on this did not appear until 1993.

C. The Base Multiplier

Analysis of the determination of the money stock is frequently undertaken via the base money multiplier, e.g. Friedman and Schwartz (1963).

$$M = H \ \frac{(1 + C/D)}{(R/D + C/D)} \qquad (8)$$

Whereas this is frequently misinterpreted as a behavioural equation, it is in fact a definitional identity, derived from the two identities,

$$M = D + C \qquad (9)$$

(the money stock is defined as deposits plus currency in the hands of the public), and

$$H = R + C \qquad (10)$$

(the high powered money stock is defined as the reserves of the banking system and currency outstanding; to get from (9) and (10) to (8) divide throughout by D and then divide (9) by (10)).

Since equation (8) above is a definitional identity it gives no clues at all to the direction of causation. If, however, one should <u>assume</u> that the Central Bank operates by fixing the monetary base (H), then that, (plus variations in the two ratios, which may be influenced by policy (R/D), and by confidence in the banking system (C/D), and other economic factors, e.g. relative interest rates), determines M, the money stock. But, if, as we have now seen, it is agreed that the Central Bank sets a policy interest rate, then given the demand for money and credit, and the factors affecting the two ratios, the so-called multiplier simply determines the quantity of high-powered money (H) and bank reserves (R) that the Central Bank <u>has</u> to create in order to maintain its desired rate of interest. The base multiplier in reality works in reverse,

determining H, not M. Economists, and others, often fail to appreciate this. It is not uncommon to find textbooks incorporating both a Taylor reaction function and a standard base multiplier, wherein the CB is supposed to control H in order to determine M! See, for example, Blanchard (2006), Dornbusch, Fischer and Startz (2001).

This misunderstanding has caused numerous policy errors. It leads people to believe that raising the reserve ratio, e.g. by calls for Special Deposits, will have a significant direct effect in reducing the money stock. In practice, in order to maintain the chosen interest rate, the Central Bank has to provide the extra reserves required, after the minimum reserve ratio has been raised, in order to maintain the given interest rate. It usually does so in effect by buying short-dated liquid assets from the banks. Since such reserves are required to be held, and generally offer a zero or lower interest rate, the net effect is to make banks both less liquid and less profitable. The latter may induce the banks to widen the spread between deposit and loan rates, which will tend to reduce money (and credit) expansion slightly, but also to shift bank portfolios towards riskier, but higher yielding, loans. Reserve requirements are, therefore, best seen as a tax on banks, slightly reducing their growth rate and making them both less liquid and less risk averse. In so far as taxes can be avoided by shifting location, they will be.[10]

Next, it is often stated that Central Banks have a choice whether to sterilise, or not, intervention in the foreign exchange market. In fact, so long as they seek to maintain

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[10]   There were many policy discussions about whether, and how, to impose reserve requirements on the euro-$ international markets in the 1970s and 1980s. These were made more difficult since many of the participants misunderstood the base multiplier analysis.

some given policy-determined domestic interest rate (greater than zero), they have no such choice. Such intervention will automatically be sterilised.

The failure to appreciate this mechanism has also complicated discussion of monetary policy during the 2007 financial crisis. When banks wanted more cash, they were automatically given it by all Central Banks. Because of counterparty risk, and projections of future calls for extra bank funding, (to replace asset-backed commercial paper not being rolled-over), banks would not lend to each other in the three-month interbank market, so three month Libor rates rose relative to overnight rates. To reduce this latter rate, Central Banks either had to lower the short-term policy rate, or try to undertake an 'operation twist', in which they buy (lend on) 3 month paper and offset this by net sales (borrowing) overnight in order to keep overnight rates close to the policy rate. In the past such an operation twist has rarely been successful, but it may well have been worth attempting in the recent crisis, (what can one lose from it?).

D. The Current Consensus Model

Besides the shift from assuming that the Central Bank sets the monetary base, to the realisation that it sets a policy interest rate, recent decades have seen two revolutions, the adoption of rational expectations and quest for optimising micro-foundations, both connected with the work of Lucas, (e.g. 1972, 1976). This has led the initial two equation model to morph into the current consensus three equation model, whose domination of analysis is stronger than ever. As is well-known, this takes the form:-

$$y_t = E(y) + b_1(i_t - E(\pi)), \quad b_1 < 0 \qquad (11)$$

$$\pi_t = E(\pi) + b_2(y), \, b_2 > 0 \qquad\qquad\qquad (12)$$

$$i_t = b_3(\pi - \pi^*) + b_4(y), \, b_3 > 1, \, b_4 > 0 \qquad\qquad (13)$$

where E, the expectations operator, is some combination of backwards and forwards

looking elements, y is the estimated output gap, and equation (13) is the Taylor

reaction function.

Equations 11 (the old I/S curve) and 12 (the old Phillips curve) are, in turn, derived

from an underlying optimising DSGE model, plus a (rather dodgy)

assumption/estimate of temporary wage/price frictions/rigidities (e.g. Calvo pricing)

(Calvo, 1983). Amongst the several problems/disadvantages of this current consensus

is that, in order to make a rational expectations, micro-founded model mathematically

and analytically tractable it has been necessary in general to impose some (absurdly)

simplifying assumptions, notably the existence of representative agents, who never

default. This latter (nonsensical) assumption goes under the jargon term as the

transversality condition.

This makes all agents perfectly creditworthy. Over any horizon there is only one

interest rate facing all agents, i.e. no risk premia. All transactions can be undertaken

in capital markets; there is no role for banks. Since all IOUs are perfectly credit-

worthy, there is no need for money. There are no credit constraints, (everyone is

angelic; there is no fraud; and this is supposed to be properly micro-founded!).

Money is generally introduced into the model by auxiliary ad hoc frictions, e.g. cash

in advance requirements or limited participation, both of which are totally internally

inconsistent with a world without any default. Essentially, therefore, the consensus

three equation model assumes a non-monetary, non-banking, system, so it is no

surprise that most theoretical adherents of it tend to down-play attention to, or concern

with, purely monetary variables, e.g. the monetary aggregates, (see for example

Woodford, Svensson, (Woodford, 2003, 2007; Svensson, 2003, 2007)

Under normal circumstances risk premia remain, more or less, steady and defaults are

low. In these (fair weather) circumstances, the main driving force affecting financial

conditions is the change in the official policy rate, and expectations of future

developments to inflation, the output gap and policy rates. In such usual

circumstances the consensus model and its background DSGE representations will

work well.

But every now and again, and 2007 has become an example, risk premia shift sharply,

as do credit constraints. Defaults, and fear of future defaults, can rise sharply. DSGE,

and the consensus, models have no capacity (at present) to incorporate such effects.

A variety of, ad hoc, auxiliary data (on credit conditions) and subjective add-ons have

to be bolted on to forecasting models.[11] The modellers' hope is that the monetary

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[11] I attach the opening section of my comments on Curdia and Woodford at the BIS 2008 Conference at Luzern.

"Analyses and assessments of central bank activities have been unduly uni-dimensional in recent years, prior to 2007, focussing almost entirely on the role of their Monetary Policy Committees in setting interest rates, and virtually ignoring their other core purposes of maintaining financial stability and financial efficiency and some central banks have been similarly unidimensional. By more, or less, exactly the same token the basic New-Keynesian DSGE macro-model is unidimensional in that it abstracts entirely from the key financial risk, that is default risk. The transversality condition, which embodies this risk-free assumption, allows the model to be made much simpler and more tractable, in particular by having representative agents. But it is nevertheless unsatisfactory. It is unrealistic; it is essentially non-monetary and non-financial, with no role for financial intermediation; academically and theoretically it divides macro, with no proper role for default risk, from finance, where the relationship between return and risk and the probability of default are central.

How on earth did central banks get suckered into giving credence to a model which is so patently unsatisfactory.

I had hoped that a silver-lining to the financial turmoil of the last year would be that it would have demonstrated to the better macro-economists, and amongst these Michael is probably the best, of the fundamental error of their current approach. But so far I have been wrong. What

authorities can restore calm (normal conditions) quickly enough to make the standard model usable again. But the truth is that such models can neither forecast financial disturbances, nor the scale of their effect while a crisis persists. This is hardly surprising since the models abstract from the possibility of any such crisis by definition.

A further implication of this is that the basic analytical paradigms of the macro-monetary side of a Central Bank and of its financial stability wing are mutually inconsistent, and rarely interconnect. The former (macro-monetary side) uses a model

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Curdia and Woodford have done, building on the earlier Goodfriend and McCallum 2007 paper, is largely a botch job, to repair the outputs of the model without reworking the fundamental inputs. What they do, in effect, is to spatchcock a primarily exogenous and time-varying risk spread, a spread between rates offered to depositors and paid by borrowers, onto the model as before. Thus one has to adjust official policy rates, and expectations thereof, by taking account of the time-varying risk spread, and expectations thereof; but once that is done one largely, entirely in Goodfriend and McCallum, goes on as before.

I have to admit that for forecasting and descriptive purposes, it is a rather clever dodge. We all know that there are several features of the current credit crunch that are distinct and separate from measured spreads, for example denial of access to credit for sub-prime borrowers at any interest rate, tightening of credit conditions for those maintaining access to credit, etc., but these should be highly correlated with spreads, and thus for purely descriptive and forecasting purposes, the augmented model may well prove able to accommodate the events of 2007/8.

But this is because of the introduction of a 'deus ex machina', an exogenously introduced time-varying interest rate spread. Where does this come from? Everybody knows that, in practice, this derives primarily from default risk; let me just cite Taylor and Williams, 'A Black Swan in the Money Market', NBER WP 13943, April 2008. Yet there is no mention of default in Goodfriend and McCallum, or at any rate in the early drafts of Curdia and Woodford. It is Hamlet without the Prince of Denmark. How can one sensibly discuss banking, or risk spreads, or money without treating default up front and centre?

There is, indeed, a debate whether the recent crisis was primarily driven by liquidity or default risk worries, but the two concepts are inextricably inter-twined. Concern with potential failure leads lenders to refuse to roll-over, and illiquidity can rapidly drive both individual banks and financial systems into solvency problems. The anticipation of potential defaults leads to contractions of credit, deleveraging, which latter does most of the damage, even without the necessity of formal default events. Neither Bear Stearns, nor Northern Rock, nor IKB formally defaulted, but the prospect that they, and others, might, (alongside sub-prime borrowers, various hedge funds and SIVs), exacerbated the recent turmoil."

that abstracts from default. The financial stability department cannot do so, but struggles to find a theoretical underpinning.[12]

Hy Minsky (e.g. 1982) gave a verbal description of financial processes, but this has been generally dismissed as insufficiently rigorous, non-mathematical and not based on rational expectations or micro-foundations. Martin Shubik (e.g. 1973, 1977, 1999) provided a much more rigorous and well-founded account of a monetary/banking system in which default plays a central role, but his work has also been largely bypassed, for reasons that elude me, by the mainstream. D. Tsomocos and I have been trying to build on Shubik's work to develop practical, yet rigorous, models of the interaction between risk aversion, default probabilities and the real economy, (e.g. 2004, 2005a and b, 2006a and b, 2007). There is a long way to go, but a good starting point would be a recognise the inherent lack of realism, and deficiency, of any model, such as the current consensus model which fails to have a central role for default.

E. The Evolution of Money

Kiyotaki and Moore (2002) wittily and correctly coined the phrase 'Evil is the root of all money'. I described in the last Section how human failings in the shape of refusals, and/or inability, to honour promises to repay debts (i.e. defaults) was central to the need for, and shape of, our monetary system. Another key failing of our human society is the predilection of the strong to prey (often violently) on the weak. In order to prevent society falling into Hobbesian chaos, there is a need for government, (often

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[12] I have a soft-spot for the old 'real bills' doctrine. It was analytically flawed, but it did unify the macro-monetary and the financial stability objectives. The idea was that, if a Central Bank limited its discounts to commercial bills based on real trading activity, it would simultaneously stabilise both inflation and the banking/financial system.

in the guise of the strongest power, see Mancur Olson (2000); 'power grows out of the barrel of a gun').

Besides the pure rents that government can levy, they do have expenditures, on the army, police, justice system, etc. In some early governments, e.g. in early Egypt, these were financed in kind by transfers of labour services or goods (a set proportion of the harvest) to government. But this was highly inefficient. Payment in kind did not provide the government with the proportions of goods and (labour) services that it needed. A solution to this was for the government to issue claims on itself, (supported by, but not entirely dependent on, the intrinsic value of metallic coins in many cases), which it promised to accept in payment of taxes (in lieu of goods and services). Such promises were generally credible, (they were backed by the power of the state), so long as,

(i) the purchasing power of money was not debauched by over-issue and devaluation; and

(ii) the power of the state was not threatened.[13]

Violence is endemic in human societies, and can lead to debilitating and persistent feuds that disrupt the social framework. 'An eye for an eye, and a tooth for a tooth' is a natural, but not a welfare enhancing, response. Another key factor leading to a monetary system is the need for a common tariff whereby the wrong done by X on Y can be settled and expurgated by the transfer of a predetermined number of units of some object from the transgressor (or his clan) to the victim. That object will evolve

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[13] If the state collapsed, the value of its outstanding money would fall back to its intrinsic value as a pure commodity, whether of gold or as art-work, as in defaulted government bonds.

into a monetary unit. Indeed many societal relationships, such as the bride price, involve transfers of monetary type objects.

Money was invented as a social, and governmental, phenomenon[14], <u>not</u> as a means of reducing transactions costs in markets. The invention of money probably predated the development of formal markets; thus money facilitated the rise of markets, rather than vice versa. One piece of evidence of this is that many early money forms, notably cattle, (the word pecuniary derives from the later Latin word 'pecus'), are highly unsuitable for ordinary transactions, (being neither standardised, easily portable nor divisible). Even gold coins, the prototype of early metallic money, were so expensive relative to regular wages/goods prices that they would very rarely be usable in day-to-day transactions.

Our knowledge of the monetary systems in primitive and early societies is necessarily somewhat sketchy. Nevertheless I believe that the consensus among historians and anthropologists is that money developed as a social (and governmental) artefact, rather than as a mechanism for reducing transactions costs in private-sector markets. But such a viewpoint is somewhat woolly and socio-logical, and has not, in the past[15], lent itself to mathematical modelling. So, economists have tended to ignore historical reality, to establish formal mathematical models of how private agents (with no government), transacting amongst themselves, might jointly adopt an equilibrium in which they all settle on a common monetary instrument.

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[14] Though money did reduce the transactions costs of government.
[15] There is an excellent paper by Dror Goldberg of Texas A&M on 'The Tax-Foundation Theory of Fiat Money', which uses a dynamic mathematical model. Perhaps once economists see that the realistic approach can be rigorously expressed in abstract theory, they will become more willing to accept its historical validity.

Does such a misconception matter? I have argued that it does, particularly in the case of the euro-zone, in my paper on 'The Two Concepts of Money' (2003). The concept, originally developed by Menger (1892), that money emerged as a private-sector initiative (to cut transactions costs), implied that you could change the monetary regime within the EU without worrying much about the need for associated adjustments to the fiscal regime. On the other hand, if money is a social artefact, then a key feature of any monetary regime change must be to design the appropriate accompanying fiscal measures.

Let me take a current concern. The adoption of a single currency is being accompanied, as intended, by the emergence of pan-European banks. That has led to proposals for a common pan-European system of banking supervision and of crisis management and resolution for such banks, in order to handle cross-border co-ordination problems. Crisis resolution is, however, potentially very expensive. There is no current fiscal mechanism to provide funds for crisis management at the federal level; that can only be done at national level. So long as the fiscal funding remains the responsibility of the constituent nation states, it is difficult to see how banking (financial) supervision and crisis management could be moved to a federal pan-European level.

F. Conclusions

John Hicks (1969), at least in his later years, argued that monetary economics needed to be firmly grounded on a knowledge of historical and institutional fact. Yet in recent decades the suggestion that Prof. X took an institutional approach to monetary analysis was sufficient to cast his/her reputation into outer darkness. Only small groups of mainly heterodox (and of various hues of post-Keynesian views) economists have bothered much to relate theory to reality. Why this has been so, I do not know. That it has been so, as I have sought to document, is not a good advertisement for this sub-sector of our profession.

In particular, Lionel Robbins argued that the applicability of a theory "to a given situation depends upon the extent to which its concepts actually reflect the forces operating in that situation". I have argued, above, that the current dominant consensus money/macro model, the standard DSGE model, abstracts from, (or 'excludes' as Brian Loasby, (2008), would put it), any possibility of failure, or default, and thereby largely eliminates any rationale for banks, financial intermediaries, or even money. That this is strictly insufficient and inappropriate has been all too clearly illustrated by the events of 2007/8.

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