



The parlous state of macroeconomics and the optimal financial structure



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ABSTRACT

Macroeconomics remains in a parlous condition, largely because it has assumed away all financial frictions. Ultimately these latter depend on the possibility that borrowers might default on their repayments. Without default, there is no real role for most financial intermediations, collateral, liquidity or money. Yet default (especially of banks, the key ingredient of crises) is rarely modelled. In order to make banks safer, in the aftermath of the Great Financial Crisis, there are various proposals to restructure our banking systems, for example to dismantle universal banks into separate retail and investment parts. This partly derives from a mis-reading of the causes of the GFC, which was largely driven by an interaction between a housing boom and a bank credit expansion surfeit, thereby exaggerating leverage, mis-match and non-core bank finance. The need is for regulatory improvements that address these weaknesses.

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1. Part I: the parlous state of macroeconomics

1.1. The recent history of macroeconomics

One reason why I found the study of macroeconomics enjoyable is that it has been in such a mess. Consequently I thought (mistakenly) that I might be able to make a difference. As the old joke has it, 'The questions in the Economics Tripos remain the same, but the required answers change.' As Dennis Robertson once said, "Macroeconomics is rather like courting for hares. If you stand in one place you will find that the hares will double back to you and you will see them as they return to the starting point." When I was a callow undergraduate at Trinity College, Cambridge, in 1957, some 55 years ago, I had the opportunity to meet Dennis Robertson. At that time I was quite excited by studying those debates about macroeconomics which had raged in the 1930s, e.g. liquidity preference versus loanable funds. So I asked Dennis whether it had been exciting for him to have been a participant. I then saw the look of pain that went over his face, and I realised that I had put my foot in it.

Anyhow, I can now, with reasonable confidence, proclaim that, having laboured in the field of money-macro for the last 50 years or more, I shall shortly leave it, with the subject probably being in a worse state than when I initially found it. Let me try to explain why

and how this occurred. Let me start with a brief review of the main path of macroeconomics as a subject since the end of the 1950s and early 1960s, when I first found it.

- We start with computerisation at the end of the 1950s and beginning of the 1960s. As an undergraduate in Cambridge, there was only one computer in the whole university, housed in a huge room, with no likelihood for any undergraduate, nor indeed a research student, being able to access it. This was rapidly changing, and when I went to Harvard, I found my first IBM computers, with punch cards as inputs, and a printer in the form of a typewriter sitting on top of the computer, with the keys going up and down without any human involvement, as the output got printed out.
- Then we got the early Keynesian models based on the income and expenditure accounts, with consumption functions, investment functions, import and export functions, etc. All of these took the shape of reduced form fitted equations, trying to provide the best econometric fit to the dependent variable in each case, on the basis of whatever set of variables were supposed by theory, or empirical investigation, to give the best empirical explanation of the time series of the variable in question.
- This, of course, led on to the Lucas Critique, that these reduced form equation were inconsistent, incoherent, and unrelated to any apparent pattern of micro-behaviour. This critique was, of course, correct.

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- This led on to trying to rewrite the equations in the form of constrained utility maximisations (Euler equations) for every agent. But, if one was to have as many agents as there are in the economy, this would be impossibly complicated and virtually impossible to compute or to relate to aggregate empirical data. The result of this was to work on the basis of an assumption that everyone in each of the sectors involved was to be exactly the same, i.e. the Representative Agent assumption.
- But, if there was to be a Representative Agent assumption, then either, should default occur, everyone would default and the sector would cease to exist, or no one would default ever. In effect, the latter assumption was made, though frequently this was implicit rather than explicit. But, with no default, there would be no risk premia, and no need for banks or money. Instead, there would just be one (official policy) interest rate, and expectations of its future path.
- But, with no default, no banks and no money, and no risk premia, the resulting (DSGE) models were hopeless in a financial crisis. In effect, macroeconomics became totally divorced from finance, with finance depending critically on expectations of probability of default (PD) and loss-given default (LGD).

In practice, in my view, the real advances in economics at the macro level in recent decades have occurred in the field of finance, rather than in macroeconomics. By abstracting from default, banking and money, macroeconomics has gone down a blind alley; the concept that all relevant action takes place in the real economy, with finance being nothing more than a veil, has not been helpful.

1.2. Default

There is a need to model default explicitly, and that would bring with it the need to model liquidity, banks and other financial intermediaries, along with markets for financial assets. It is true that certain DSGE models now have financial add-ons, such as the Bernanke–Gertler and the Kiyotaki–Moore models, but these have default implicit in their models, even if not explicit. For example, some of these are based on the fact that borrowers need collateral in order to borrow, and the value of collateral varies with the state of the economy. But one only needs collateral in order to protect against default; so, the basis of such models effectively depends ultimately on the possibility of default.

Moreover, default does occur; indeed, the default of banks has been at the heart of most of the worst downturns and depressions of the modern era; examples includes Lehman Bros in 2008, Credit Anstalt in 1931, Knickerbocker Trust in 1907, and several others that could be added.

Default, however, is hard to model since it is not continuous. The response of Martin Shubik, and several colleagues, has been to reverse the problem and to focus attention on the repayment rate, in the event of default, rather than on the fact of default itself. When one is thinking about a sector, such as the productive sector, one can think of the percentage of non-performing loans or the percentage of write-offs that the bank has to apply. Even in the case of the failure of a single big bank, it is almost never the case that there is no repayment in the case of bankruptcy and liquidation. Even with Lehman Bros, the creditors (eventually) got a sizeable repayment. The repayment rate can vary continuously between 0 and 100% and both the actual, and expected, repayment rates are usually, almost always, somewhere in the interior. Thus, one can use repayment rates as a variable to include within the confines of the standard type of macro-model that is applied in our subject.

1.3. The determination of the money stock

Even worse than the analytical treatment of the macro-economy is the recent, and indeed present state of the theory of the supply of money, and study and analysis of the operation of banks; and all this despite Richard Werner's good work (see, for instance, Werner, 2005) and recent book, with colleagues, entitled *Where Does Money Come*

From?: A Guide to the UK Monetary & Banking System (Ryan-Collins, Greenham, Werner, & Jackson, 2012).

For example, the analysis of the supply-side determination of the money stock is still based on a money multiplier analysis, which is a purely mechanical relationship derived from identities. This relates the broader money stock, M to the monetary base, H , in a mechanical fashion dependent on two ratios, the currency deposit, C/D , and the reserve deposit, R/D , ratios. But, so long as the central bank sets the policy interest rate, the broad money stock is endogenous, since maintenance of market interest rates close to the policy interest rate requires the central bank to give the banks enough high-powered money to enable them to maintain their desired reserve deposit (R/D) ratio such as would be consistent with the policy-determined interest rate. If the central bank provided an insufficient (excessive) reserve base for the banks, they would push (short-term) market rates above (below) the policy rate, thereby forcing the central bank to inject (withdraw) reserves into the system to make their policy rate effective.

But once the zero lower bound to interest rates kicks in, so that the policy interest rate is set effectively as close to zero as can be achieved, then the central bank can, and has with QE, attempted to vary H , the high-powered monetary base, exogenously, expanding H very sharply. So, policy has now changed, with the central bank setting the volume of base money, independently of the level of policy interest rates, which are stuck at zero. With policy changed, both the Lucas Critique and Goodhart's Law, then have kicked in. The increase in H , base money, in most of the central banks, Fed, BoE, BoJ and ECB, has increased by a factor of 3 or 4. Meanwhile, however, the overall money stock has grown, if at all, very grudgingly; and bank lending to the private sector has in most cases been stagnant, or even negative. The money multiplier has collapsed! If the money multiplier had remained stable, so that broad money had increased at roughly the same rate as the reserve base of the banking system, then the crisis would have been over, and, indeed, it might have been replaced by an upsurge in inflation.

The bank lending channel has completely failed. Somewhat surprisingly, central banks have been too embarrassed to discuss this failure. What happened? Why did those who take banking decisions not want to use the increase in their reserves to expand their asset portfolios? It is bank CEOs who take the decisions on bank portfolio management. Why did nobody ask what would be such CEO micro-behavioural, constrained utility maximisation under such circumstances, rather than using the mechanical multiplier analysis? The CEOs' answer to their shareholders, and are concerned about the potential for takeovers in the equity market. Moreover, they themselves are almost always large shareholders; this is because they receive bonus payments quite largely in the form of shares in their own bank. So, naturally, they focus on the return on equity (RoE). Also, equity holders, including banks' CEOs, have limited liability. If there should be some disaster, they can depart, crying all the way to retirement with their amassed pot of gold. Equity involves an option call on the assets of a bank. The structure of pay-offs means that equity holders are necessarily risk-loving; Northern Rock was the darling of the London Stock Exchange only a few months before it collapsed.

Return on equity is generally maximised by expanding leverage, having a very small proportion of equity in relation to a much larger proportion of fixed debt. Consequently the equity holders get the benefit of all the upturn above the required payment to the fixed interest holders, while their downside is limited. So, equity will be minimised, and games will be played with risk-weighting, with banks subject to a risk-weighted capital adequacy requirement (CAR) holding a massive portfolio of assets which have a supposedly minimal risk weight. In contrast, banks that are subject to an overall leverage ratio, will try to maximise RoE by holding riskier assets in their constrained volume of debt. Under these circumstances, it is only too likely that tail risk will occur. As a result, people will argue that equity ratios were, have been, and remain too low. And indeed this is so. Admati and Hellwig in their book on *The Bankers' New Clothes*, David Miles and colleagues in the *Economic*

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