THE REAL FAILURE

To understand the crisis we need to get beyond the blame game. For at the root of the crisis was not failures of character or competence, but a failure of ideas. As Keynes famously remarked, 'The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly supposed. Indeed the world is ruled by little else.'[40] The practices of bankers, regulators and governments, however egregious, can be traced back to the ideas of economists and philosophers. It is to the ideas of the economists that we now turn, starting with those most recently in fashion. For the present crisis is, to a large extent, the fruit of the intellectual failure of the economics profession.

2

The Present State of Economics

Economics has received a bad press in the present crisis, even from economists. Willem Buiter, a highly respected former member of the Bank of England's Monetary Policy Committee, has written of 'the unfortunate uselessness of most "state of the art" academic monetary economics'.[1] Macroeconomics is divided into two major schools: New Classicals and New Keynesians. The New Keynesians accuse the New Classicals of living in the Dark Ages. The New Classicals accuse the New Keynesians of being pre-Copernican. The two schools are sharply divided over the merits of the 'stimulus'.

FRESHWATERS AND SALTWATERS: A THUMBNAIL SKETCH

Robert Waldmann, professor of economics at Rome University, has given an entertaining summary of the two main American professional positions, which he dubs 'freshwater' and 'saltwater' to distinguish, respectively, Chicago (and Minnesota) economists from east- and west-coast ones. Since most of the world's top economists have been trained in the United States, these two positions are reasonably representative of the global state of macroeconomic theory:

> Roughly freshwater economists [those who teach or were trained at Chicago] consider general equilibrium models with complete markets and symmetric information to be decent approximations to reality. Unless they are specifically studying bounded rationality [a situation in which practical limitations such as computational abilities constrain perfectly rational behaviour] they assume

rational expectations, that everyone knows and has always known every conceivable conditional probability. I've only met one economist who claims to believe that people actually do have rational expectations (and I suspect he was joking). However, the freshwater view is that it usually must be assumed that people have rational expectations.

Over near the Great Lakes there is considerable investigation of models in which the market outcome is Pareto efficient [a situation where no one can get better off without someone else getting worse off], that is, it is asserted that recessions are optimal and that, if they could be prevented, it would be a mistake to prevent them.

Saltwater macroeconomics is basically everything else with huge differences between people who attempt to conduct useful empirical research without using formal economic theory and people who note the fundamental theoretical importance of incomplete markets and of asymmetric information and of imperfect competition . . . Market outcomes are generically constrained Pareto inefficient which means that everyone can be made better off by regulations . . .

In the US there is a strong correlation between Fresh and Salt and Right and Left. The correlation is not perfect.

Because New Keynesians are much more interested in policy than New Classicals, they have a bias for developing models which allow some scope for policy intervention. This policy interest dilutes the purity of their acceptance of New Classical theory. For policy must have a window of opportunity to be effective, which, as we shall see, the freshwater school deny. Thus the New Keynesians tend to make use of an escape clause as old as economics itself – the distinction between the long run and the short run. This enables them to inhabit the same theoretical house as the New Classical economists, differing from them only in their view that it takes *longer* for economies to adjust to 'shocks'. In that interval of time lies the chance for the intrusion of common sense.

THE UNDERLYING PREMISES

Although the two schools differ considerably on policy, they share the same underlying theoretical premises. Their quarrels seem to be in the nature of family disputes. Family quarrels can be very bad-tempered.

Buiter has pointed out that the most influential New Classical and New Keynesian theorists work equally in a 'complete markets paradigm': roughly, they assume that markets exist for every possible contingency. In this situation, 'default, bankruptcy and insolvency are impossible.'[2] It is not surprising that Buiter thinks that these theorists are ill-equipped to explain what is happening. Much more seriously, by their influence on the way policymakers think about the world, they have helped create a system which is inefficient, unjust and prone to frequent collapses.

The three interrelated premises of the New Classical macroeconomics are the rational expectations hypothesis (REH), real business cycle theory (RBC) and the efficient market theory (EMT). Together they lie at the heart of contemporary macroeconomics. Their inventors have won Nobel Prizes. To the non-economist they will seem mad; but they are the only way most macroeconomists today know how to do economics.

RATIONAL EXPECTATIONS

The theory of rational expectations is relatively new, but it has a long lineage. Leon Walras begat Arrow and Debreu, from whose loins sprang Robert Lucas – the high priest of rational expectations.

Paul Samuelson considered Leon Walras, a nineteenth-century French engineer and mathematician, one of the three greatest economists of all time, the others being Adam Smith and Keynes. This chapter is mainly about the economic consequences of Leon Walras. Walras was the first economist to write down equations for a 'general equilibrium' of the whole economy. Each equation represented a specific market said to be in equilibrium when demand equalled supply. For a solution to exist to all market equations *simultaneously*, and therefore for the system of equations to be in *general equilibrium*, excess demand and excess supply across the various markets need to sum to zero. Walras's Law says that in an economy of, say, ten markets, nine of which are in equilibrium, the tenth will also be in equilibrium. This assumes complete markets – a market for every conceivable transaction – and a perfectly competitive economy.

A later version of Walras's model implicitly introduced the idea that

markets clear over time as well as at every point in time. This forced economists to consider expectations.

Based in part on Alfred Marshall's market day equilibrium, John Hicks developed the idea of temporary equilibria in the 1940s and 50s as a way of approaching some of the questions left unanswered by Walras. However, Hicks' notion of multiple trading periods with equilibrium in each but the possibility of *dis*equilibrium in between was soon swept away by the excitement surrounding the work of Kenneth Arrow and Gerard Debreu. Their mathematically elegant formulation of price formation and general equilibrium conditions (1952) emerged as the true heir of Walras and was to dominate economic thought for much of the second half of the twenieth century. Rather than developing further the idea of the two aspects of the general equilibrium tentatively introduced by Walras – market clearing and inter-temporal – Arrow and Debreu 'purified' the model by assuming that all trade takes place at one unique point. Gone was the division into two periods. Time only featured in the form of 'futures markets': you buy and sell goods which will be delivered in the future but at a time and price specified today. In other words, at the unique point at which trade takes place, a market-clearing equilibrium is established which is assumed to cover demand and supply until the end of time. In essence, Arrow and Debreu collapsed time to a single point, making inter-temporal considerations meaningless. To Walras's perfectly competitive economy they added perfect foresight.

Yet the Arrow–Debreu framework, while mathematically ingenious, had nothing to do with reality. Economic agents do not have perfect foresight; we do not congregate at a unique point in time to carry out the transactions for all future mankind; and economies do not always seem to be in equilibrium. By reinstating Hicks' notion of multiple periods and introducing adaptive expectations, Milton Friedman essayed a bold leap back into reality. Crucially, Friedman distinguished between the sort of equilibrium that could be attained in a very short period (market day) and the final, or 'normal', long-run equilibrium. Adaptive expectations allowed for all kinds of short-run mistakes on the path to 'normal' equilibrium.

However, while Friedman allowed for adaptive learning in his macroeconomics, his microeconomic foundations remained true to Walras.

As he stated it himself: we 'curtsy to Marshall, but walk with Walras.'[3] What walking with Walras meant was assuming rational agents maximising utility in complete and perfectly competitive markets. It was this aspect of his thinking which had most influence on his most famous student, Robert Lucas. Just like Arrow and Debreu had reversed the process towards realism started by Marshall and Hicks, Lucas reversed the process embarked on by Friedman. Using fanciful mathematics Lucas and his followers bedazzled the world of macroeconomics with increasingly alien inventions in microeconomics. By means of rational expectations and real business cycle theory economists came to believe that the future was certain, that unemployment was voluntary and that numbers could substitute common sense.

Why did economists come to do economics in this way? Two motives suggest themselves. The first was a desire to establish superiority over other social sciences by exploiting the measurability economic phenomena. More fundamental, in my view, was hatred of government.

The New Classical economists developed the rational expectations hypothesis to demonstrate the uselessness and even harm of government interference with market processes. The old classical economists believed that, *if* wages and prices were completely flexible, there could be no persistent unemployment. Nevertheless, they accepted that widespread ignorance about future events could make people slow to adjust to change, and that therefore unemployment could persist for some time, justifying government intervention to provide employment. Now see what happens if you abolish the ignorance assumption. Assume that everyone has perfect information about future events. Now the sluggishness disappears. Wages and prices will adjust instantaneously to new conditions, because these conditions will have been anticipated and will already be incorporated in the prices which people charge and expect to pay for their services. No departure from real long-term values is possible even in the short run. Greenspan's 'underpricing of risk worldwide' is impossible. Moreover, because people are always at their preferred position, government efforts to improve their position will be ineffective. The bogey of involuntary or unwanted unemployment is banished. Such unemployment as is observed is a voluntary choice for leisure. Government should get out of the business of second-guessing private preferences. This is the meaning of the rational expectations revolution.

REH economists built a sophisticated intellectual structure, whose starting point is the existence of extensive and precise knowledge of future events. This is derived from all the information available about both past and present circumstances. The extensive-knowledge assumption implies that economic actors will not make systematic mistakes in predicting the future. This rules out the possibility of large crises except as a result of surprises – things which haven't happened before and which therefore cannot be part of anyone's information. But these are increasingly unlikely as our information, and ability to process it, expands.

Two formal propositions underlie REH. The first is that in forming their expectations, rational individuals make efficient use of all the information available to them. This is generally taken to mean that they behave in ways consistent with the models that predict how they will behave. The possibility of random shocks means that their behaviour will be consistent with the model only on average. People will go on making mistakes, but provided these are independent of the information set available to all, and are also independent of each other, there is no reason to suppose that they will be biased in one way or another. The only possible source of bias lies in the model itself. This leads to the second proposition: that the model of the economy used by individuals in making their forecasts is the correct one – that is, that the economy behaves in the way predicted by the model. The model assumes that the universe exhibits stability over time: that the future can be inferred from the past and the present. Without some such assumption, the possibility of making correct forecasts is severely restricted. How do people know that they have the right model? The answer is that the world of economic theories or models is subject to a Darwinian learning process, in which inferior models – those which make forecasts disproved by events – are weeded out, just as they are in the natural sciences. Not surprisingly, the correct models turn out to be those favoured by the Chicago school of economists. Rational behaviour boils down to having expectations of future events identical with the models of Chicago economists.

The two assumptions concerning efficient use of information and stability of the universe give the required amount of information and predictability to make expectations correct on average. Since the information set on which expectations are based is always up to the minute, at no

time is there any ground for changing expectations. If you think that you will change your expectations, you have already changed them, and therefore will not change them in the future. Today's share price depends on today's expectation of what the price will be till the end of time.* One implication of assuming perfect rationality was increasing use of the 'representative agent' model. Since all agents were assumed to be rational and equipped with the same information, it followed that the whole economy could be treated as the outcome of the decisions of one individual. And it made the mathematics much easier. More recent work has relaxed the rigour of this assumption. However, even post-graduate students in economics rarely venture into the real world of heterogeneous agents.

REH was not intended by its adherents to be a literal description of how people actually behave. Robert Lucas has always emphasized the fictional character of his models. The predictive performance of REH models is notoriously bad. REH was advanced as a solution to an abstract problem: What conditions of knowledge would be required for markets to be perfectly efficient? Efficiency has always been the normative goal of economics. If the conditions required for market efficiency could be specified, and, over time, realized, then poverty would be eradicated, and the role of government in the economy suitably diminished. Economists therefore set out to build a Platonic world of perfect efficiency, which was nevertheless supposed to have sufficient warrant in terms of human computing abilities and the nature of the universe to make it an acceptable basis for economic theorizing. Unfortunately most policymakers – and even economists – failed to distinguish statements of logical possibility from descriptions of the real world, an ambiguity which REH is happy to accommodate.

Although all mainstream economists adhere to REH, they do so with varying degrees of conviction. In the world of 'strong' rational expectations, all resources are always fully employed. There is no such thing as involuntary unemployment, only voluntary choices for work or leisure. The hugely important policy implication of this belief, as we shall see, is not just that 'stimulus' policies will fail to stimulate, but that

* The best guess that an agent can make at time t about the value of a variable at time $t+i+j$ is equal to the best guess that he can make about his expectation for the same variable at intermediate time $t+i$. That is, there is no basis for determining any changes in expectation over time.

they will lead to inferior outcomes. The New Keynesians accept REH, but also admit the existence of 'frictions' which impede almost instantaneous adjustment to new conditions. This allows them to advocate government interventions to improve outcomes.

In the history of thought, REH represents a fusion of the rational-scientific aspirations of the Enlightenment with that belief in the 'wisdom of the crowd' characteristic of American democracy. REH had been germinating in the womb of economics ever since the start of 'scientific' economics in the eighteenth century, requiring only mathematical magic to bring it to full life. But the history of rational expectations is also connected with the democratic character of the American dream. Markets, representing the verdict of millions of individuals pursuing their self-interest, know more and better than governments. The American consumer is queen. Adherents of REH love to stress the democratic character of the rationality claim. It is based on the law of large numbers, which tells us that the larger the group, the more likely is the average choice to be optimal. There is no way in which governments can improve on the crowd's wisdom.

However, although REH economists were concerned to make the case for unfettered markets, REH is also the answer to the central planner's dream. Just think of those giant linear-programming exercises designed by Soviet mathematicians in the 1960s in the attempt to make central planning rational. The crucial assumption of REH is not perfect competition, but perfect information. Had the Soviet state been able to concentrate the information and computing power now said to be dispersed around free markets, there would have been no technical reason why its choices should not have been perfectly rational in the way postulated by REH. A single Platonic guardian would make no mistakes.

REAL BUSINESS CYCLE THEORY

RBC theorists accept the strong version of the REH: that markets always clear – that is, that demand always equals supply. But if markets always clear, why do we have business cycles? The older generation of theorists had explained such cycles by slowness of wages and prices to adjust to 'shocks'. A change in spending drives the economy away from

equilibrium, but 'sticky' wages and/or prices prevent rapid adjustment to a new equilibrium. As wages and prices do not adjust, output does. But REH claimed almost instantaneous adjustment. It seemed to follow, RBC theorists argued, that cycles are due not to temporary deviations from an optimal level of output, but to fluctuations in the level of potential output itself. Business-cycle fluctuations are explained by sequences of real shocks to productivity which reverberate through the economic system. Recessions and periods of high economic growth are the efficient response to changes in the real economic environment – that is what makes the theory a 'real' theory. The changes might involve oil prices, regulations, weather conditions, and so on.

Suppose, for example, that the rate of technological change slows down. As a result, people's marginal productivity will drop, and, as it does so, the real wage will drop. People will react to that change in a rational manner by choosing to work for a lower wage, in the same or an alternative job, or will spend more time with their families. Hence real shocks provoke cycles through efficient reactions by economic agents to their changing economic circumstances. This pattern holds over longer periods. When there is a cluster of new inventions which raise real wages, people will work more, causing output to surge. Where there is a technological slowdown which lowers the real wage, people will work less, causing output to fall. This pattern is what we observe as booms and recessions. Like REH, RBC assumes that markets are efficient in the absence of regulations. The implication is, obviously, that markets should be left as little regulated as possible. In recent years great efforts have been invested in developing the so-called dynamic stochastic general equilibrium (DSGE) RBC models, whose main feature has been the attempt to model decisions over time by using increasingly complicated mathematics.

What RBC theorists have in mind as examples of 'efficient' adaptation to 'real' shocks is brought out by the following snatch of conversation between Robert Lucas, high priest of RBC theory, and Arjo Klamer in the early 1980s. Unemployment in the US was then 9.4%:

KLAMER: My taxi driver here is driving a taxi, even though he is an accountant, because he can't find a job. He is obviously frustrated. It seems a lot of people are running around in that position.

LUCAS: I would describe him as a taxi driver (laughing), if what he is doing is driving a taxi.

KLAMER: But a frustrated taxi driver.

LUCAS: Well, we draw these things out of urns, and sometimes we get good draws, and sometimes bad draws.

Lucas went on to explain that situations of heavy unemployment are best modelled as information problems:

If you look back at the 1929 to 1933 episode, there were a lot of decisions made that, after the fact, people wished they had not made; there were a lot of jobs people quit that they wished they had hung on to; there are job offers that people turned down because they thought the wage offer was crappy, then three months later they wished they had grabbed. Accountants who lost their accounting jobs passed over a cab driver's job, and now they're sitting on the street while their pal's driving a cab. So they wish they'd taken the cab driver's job. People are making this kind of mistake all the time.

Nevertheless, Lucas did find it hard to understand why these 'mistakes' didn't cancel each other out.

THE EFFICIENT MARKET THEORY

The Efficient Market Theory says something extremely simple, writes Andrew Smithers, 'which is that shares are always correctly priced'.[4] This is because they fully reflect all available information.

It is not easy to see why a world in which the future is perfectly known requires financial markets at all, since such a world is risk-free. REH is transformed into EMT by acknowledging that the future is risky. But it assumes that all risks are probabilistically measureable – something which Keynes explicitly denied (see Chapter 4) – and that therefore share prices at each point in time reflect objective changes in information. Provided that the causes of the information changes – such as a change in the inflation rate – are predetermined, the risks associated with them are also pre-determined. Only unpredictable shocks will cause actual prices to differ from 'intrinsic' values. EMT has been the biggest casualty of the current financial meltdown.

Britain's Financial Services Authority has described, with commendable honesty, the 'intellectual assumptions' on which it based its recent regulatory philosophy:

(i) Market prices are good indicators of rationally evaluated economic value.
(ii) The development of securitized credit, since based on the creation of new and more liquid markets, has improved both allocative efficiency and financial stability.
(iii) The risk characteristics of financial markets can be inferred from mathematical analysis, delivering robust quantitative measures of trading risk.
(iv) Market discipline can be used as an effective tool in constraining harmful risk taking.
(v) Financial innovation can be assumed to be beneficial since market competition would winnow out any innovations which did not deliver value added.[5]

From which it followed that:

(i) Markets are in general self-correcting, with market discipline a more effective tool than regulation or supervisory oversight . . .
(ii) The main responsibility for managing risks lies with senior management and boards of . . . individual firms . . .
(iii) Customer protection is best ensured not by product regulation or direct intervention in markets, but by ensuring that wholesale markets are as unfettered and transparent as possible . . .[6]

All bank risk-management models are based on the efficient financial market theory. What they do is establish a range of probabilities within which future events will occur. Technically speaking, the spread of past returns give us a range of uncertainty about future returns. The spread, or the uncertainty of outcomes, is measured by the standard deviation or the variance.

The main assumption underlying these models is that the distribution of risk is captured by a Gaussian bell curve, named after its inventor, Carl Friedrich Gauss (1777–1855). The colloquial name 'the *normal* distribution' indicates the standard view. It is a distribution where the average value is also the most common value. Data points are clustered

in the middle. 'Normal distribution' can be represented graphically as a bell curve (see p. 41) with 'thin tails'.*

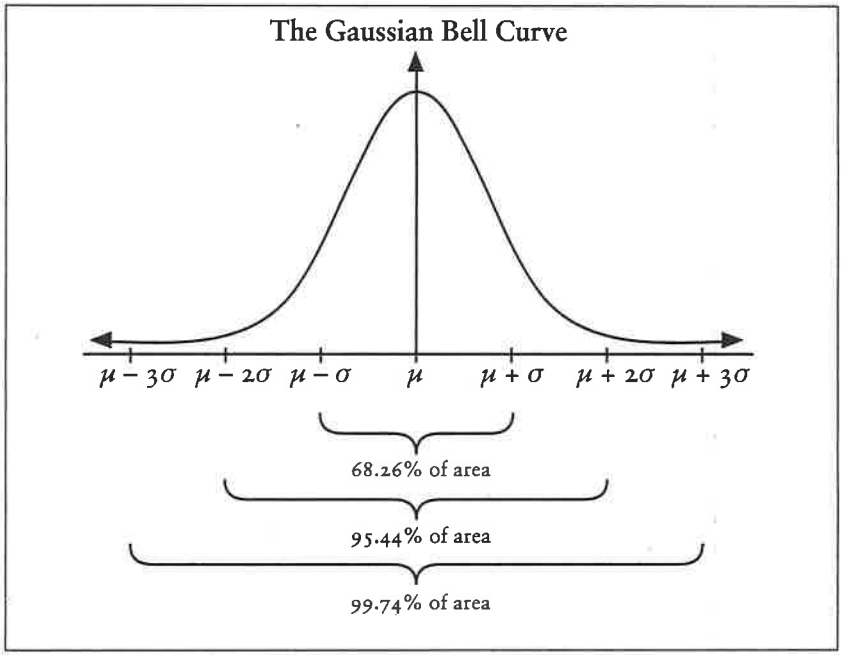
It is an article of faith in such models that diversification reduces risk: when we hold many assets, the risks which are unique to each one tend to cancel each other out, as they are largely unconnected.

The risk-management models ignored the possibility of a correlation or momentum in the movement of risks, typical of a boom or a bust. What happened over the course of 2008 was that suddenly 10% risks became 90% risks or higher, and all at the same time.

A reason often given for why the risk-management models failed is that they relied on data drawn from the very recent past. In Alan Greenspan's words, 'Probability distributions estimated largely, or exclusively over cycles that do not include periods of panic will underestimate the likelihood of extreme price movements . . . Furthermore, joint distributions estimated over periods that do not include panics will underestimate correlations between asset returns during panics.'[7] The only mistake Greenspan acknowledges is that he assumed that senior management would be able to manage risk in a way which would not endanger their firms.

But Greenspan's explanation for failure of the models does not go far enough. The failure is not only a matter of limited data: ultimately, it is a matter of limited applicability. The unpredictable element in the future is too great to be captured by forecasting models which allow only for 'normal distribution'. One cannot apply insurance models to non-insurable products. Although both actuarial and micro-forecasting models rely on historical data, the analogy between actuarial models

* An explanation for most of us. The area underneath the curve sums the full set of probabilities and is therefore equal to 1. The area under the curve between any two points represents the probability that an event occurs between those points. The x-axis is divided into standard deviations, or sigmas, around the mean (average); a standard deviation corresponds to a measure of the average distance of events from the overall average. What the normal distribution is saying is that the probability of an event happening within one standard deviation up or down from the mean is equal to 68%. The probability of an event happening within two standard deviations is 95%, and so on. In other words, the vast majority of events, it is assumed, occur very close to the average. Knowing that all probabilities add up to 1 (the total area underneath the curve) and combining that with the high concentration of probabilities around the mean implies that the area in the tails of the distribution is very small. 'Thin tails' are the statisticians' way of saying that extreme events are very unlikely.



of life, property and casualty insurance and insurance of complex derivatives is false. Although there have been failures in insurance markets (the failure of Lloyds in the late 1980s is a major example), insurers in general haven't suffered the same losses as the investment banks, because the risks they take on are generally measureable. Life-assurance companies can correctly price the premiums they need to cover their payments, because they have reliable, up-to-date, statistics of life expectancy. For them, the future is a statistical reflection of the past. But insurers, relying on a false analogy with life expectancy, have been spreading into a world beyond actuarial risk. They started offering insurance on every type of risk – credit risk, liquidity risk, market risk, legal risk, catastrophic risk, regulatory risk, political risk, compliance risk, reputational risk – all of which they claimed were actuarially calculable in exactly the same way as life assurance. And the big banks and pension funds piled in, because they bought the story. We talk of 'political risk' when we should talk about political uncertainty. We simply do not know what the probability is of the future direction of Russia's

economic or political policy. The use of the word 'risk' to cover uninsurable contingencies conveys a spurious precision, which comforts the markets but has no basis in science.

Few of the bank executives and boards who were supposed to manage risk understood the mathematics of risk-management models. This did not prevent them selling them to the public – or themselves. One of the most widely used option-pricing models, the Black–Scholes formula, is based on a 'normal distribution', and ignores the possibility of extreme events. Now, as a result of Black Swans, those executives and boards find their stock options in black holes.

It is ironic that the 2009 FSA review cited above (p. 39) says it is vital to achieve 'external challenge to conventional wisdom assumptions' from academics, when it was academic and business economists who were the main sources of the conventional-wisdom assumptions which brought the financial system crashing down. The review quotes from the IMF Global Financial Stability Report (GFSR) of April 2006:

> There is growing recognition that the dispersion of credit risk by banks to a broader and more diverse group of investors, rather than warehousing such risk on their balance sheets, has helped make the banking and overall financial system more resilient.
>
> The improved resilience may be seen in fewer bank failures and more consistent credit provision. Consequently the commercial banks may be less vulnerable today to credit or economic shocks.[8]

This is the equivalent of Professor Irving Fisher's belief in October 1929 that stock prices on Wall Street had reached a 'a permanently high plateau', followed, after its collapse, by his prediction in November that the 'end of the decline of the Stock Market will probably not be long, only a few days more at most'.[9] He was the efficient market philosopher of his day, his optimism perhaps fortified by his huge exposure. He was wiped out.

Critiques of Bell-Curve Economics

Within the academic community, the 'post-Keynesian' school of economists has remained closest to the spirit of Keynes's *General Theory*. Their best-known member,[10] Paul Davidson, has persistently maintained

that old classical, New Classical and New Keynesian economists alike have betrayed Keynes's legacy by accepting the 'ergodic' axiom – an axiom which holds that the outcome at any future date is a statistical shadow of past and present market prices. The late Hyman Minsky also followed Keynes's footsteps by depicting a financial system which transforms investment into speculation followed by collapse. Whether the present crisis represents a 'Minsky moment' has been a topic much discussed by financial journalists. Minsky was completely ignored by mainstream economists.

Following the French mathematician Benoît Mandelbrot's argument that forecasting models based on the bell curve ignore dramatic discontinuities in nature, Nassim Taleb highlights the pivotal role of Black Swans. Unlike much of physical science, economics, Taleb argues, is dominated by such rare and extreme events. 'The bell curve ignores large deviations, cannot handle them, yet makes us confident that we have tamed uncertainty.'[11] Thus risk managers supply measures of uncertainty that exclude Black Swans. At times when markets are faced with the most significant changes, economic models cease to work, since they are based on the continuity of previously observed patterns. Typically, these are times when herd behaviour is most obvious. As paraphrased in an interview in the *Wall Street Journal*, Taleb delivered himself of the thought that 'the lesson, evidently, is that it's better to be wrong than alone.'[12] All these attitudes echo Keynes on the snares of statistics.

However, Taleb's Black Swans are not Keynesian. They are highly improbable events, but one can still attach a probability to them – albeit a low one. For Keynes, uncertainty attached to a future event to which no probability can be assigned at all.

George Soros is another critic of the bell-curve view of the world. In his book *The Alchemy of Finance* (1987) he developed the idea of 'reflexivity'. Mistaken opinions about markets reinforce each other. Positive feedback loops lead to cumulative movements up or down. 'Thus, prices typically run up *too high or stay too low* for far too long, because people become fixed in their partial convictions.'[13] Because of reflexivity, momentum carries markets far from equilibrium territory. Whether 'equilibrium territory' has an objective existence is unclear.

To the non-economist, these debates may seem to have little or nothing to do with the crisis and how to get out of it. This is to ignore their influence on policy. The policy regime which followed the Reagan–Thatcher revolution reflected to a large extent the ideas of the New Classical economists. Consumer price stability became the main, and often the only, goal of macroeconomic policy, and monetary policy was considered sufficient by itself to ensure macroeconomic stability. Concern with credit, banking, asset prices, and financial stability was downgraded. Credibility of policy was supposed to be built by responding to events in a systematic way – no surprises. Budgets should be balanced and debt-to-GDP ratios stabilized, since rising debt threatened the solvency of governments, and all deficits did was to raise interest rates and thus 'crowd out' more efficient private activity. To apply these policies one needed independent central banks with mechanical rules – like the so-called Taylor rule, devised in 1993 by the economist John Taylor for relating interest-rate changes to projections of inflation. Efficient market theory also lay behind the extensive deregulation of the last twenty years: the repeal of the Glass–Steagall Act, the acceptance of bank self-assessment of risk, the failure to regulate the market for derivatives.

FAILURES TO EXPLAIN THE CRISIS

It was to be expected that, holding the theories they do, the New Classical economists have been embarrassed to admit the crisis. If markets are efficient they cannot fail. Therefore the crisis must be the result of policy mistakes. As we have seen, the favourite mistake for conservative economists is excessive money creation by the monetary authority, leading to bubble and bust. But this admission is damaging to them theoretically. It assumes that people are fooled by 'money illusion'. But if they had rational expectations, they should not have been.

But New Keynesians also flounder when they try to explain the crisis. New Keynesians have had a divided life: they accept macroeconomic models in which the assumption of perfect information makes financial markets superfluous, and yet develop micro-economic models which show that financial markets can fail. They achieve this height

of common sense by 'relaxing the assumption' of perfect information. Thus New Keynesian Joe Stiglitz: 'Failures in financial markets . . . have highlighted the importance of information imperfection . . . The results were clear: the financial system failed to perform the functions which it is supposed to perform, allocating capital efficiently and managing risk.'[14]

The main source of market failure investigated by the New Keynesians is 'asymmetric information'; insiders have an informational advantage which they can exploit for a profit over outsiders.

It is easy to identify a case of asymmetric information in the issue of collatarized debt obligations (CDOs). Similarly, a whole repertoire of potential 'market failures' can be invoked to explain why financial markets are not perfectly efficient: agency problems, perverse incentives, heterogeneous agents, balance sheet risks, and so on. But the New Keynesians, unlike Keynes, have lacked a macroeconomic model which can accommodate these imperfections in a systematic way: in a word, to incorporate the disturbing effects of money in their general models, which remain resolutely 'new classical'. Thus, like Robert Schiller, they showed that the rise in house prices was unsustainable, but ignored the possible financial consequences of the bursting of this bubble on a securitized banking system.[15] Specifically, the existence of asymmetric information cannot explain crises arising from uncertainty.

The flaw of these models is that they assume that someone – the credit customer, the insurance buyer – possesses *perfect* information. However, the present crisis shows that we are in a world of uncertainty, with the blind leading the blind. It is a crisis of symmetric ignorance, not asymmetric information.* As Taleb points out, the bankers were not only greedy, but 'phenomenally skilled at self-deception'.[16] Robert Merton and Myron Scholes, who in 1997 received a Nobel Prize for their work on derivative pricing methods, believed in the models which led to the collapse in 1998 of their hedge fund Long Term Capital Management. They were 'using phoney, bell-curve mathematics while managing to convince themselves that it was a great science and thus

* Traders need to be distinguished from bankers. No traders believe in anything as silly as efficient markets. What they live on is commissions. They are not interested in holding correctly priced risks, only in selling them on as quickly and frequently as possible. The thing to avoid is to be left holding these securities when the music stops.

turning the entire financial establishment into suckers'.[17] Every general crisis involves self-deception as well as the deception of others. In Donald Rumsfeld's immortal phrase, it is the 'unknown unknowns' which trip us up. If only one person were perfectly informed there could never be a general crisis. But the only perfectly informed person is God, and he does not play the stock market.

Despite their failure to explain the crisis New Keynesian models are more robust for policy, because they lead to the theory of the second best. That is, if a market is inescapably distorted then a further distortion, say a government tax or regulation, can actually improve things.

The reason why economics has given such a poor account of the origins of the crisis is that there is something essentially incompatible between the economist's view of individual rationality and systemic collapse. Without adding qualifications which strain their logic, economists cannot readily get from their picture of the the individual maximizing his utilities to booms and slumps and the persistence of depressions. The New Keynesian solution is to say that people are rational but have information problems. Another is simply to say that human behaviour is irrational, and therefore efficient markets don't exist. This is the thrust of behavioural economics. But the epistemological source of such irrationality is unexplored. The adoption of 'irrationality' as a general explanation for all 'abnormal distributions' smacks of theoretical panic.[18] Another line of retreat is to say, with Alan Greenspan, that disasters such as the present are (unexplained) once-in-a-century events, and that most of the time markets behave in a perfectly rational way. None of these explanations gets to the heart of the matter, because they all leave out the influence of irreduceable uncertainty on behaviour.

DEBATE OVER THE STIMULUS

The influence of ideas on policy is also clearly shown by the debate over how to escape from the slump. The New Classical economists believe in continuous market clearing. The New Keynesians believe

that markets fail due to imperfect information and other frictions: whether they believe that markets *must* fail is less obvious. Normally these schools pursue their separate ways, but on the subject of the stimulus they argue the toss like bad-natured siblings. Broadly speaking, the New Classical economists believe that any stimulating should be done by means of the central bank printing money. New Keynesians believe it should be done by the government running a budget deficit financed by bond issues and itself directly spending the money raised on infrastructure projects.

New Classical economists have no explanation for the present slump except to say that it must have been caused by an 'unforeseeble shock', which caused a collapse in the money supply.[19] Echoing Milton Friedman, who believed that the Great Depression was caused by the Federal Reserve Board not offsetting the collapse in the money supply by open-market operations, Lucas approved of the Fed's injection of hundreds of billion extra dollars into the economy. Monetary policy, as Bernanke implements it, he explained in August 2009, has been

> the most helpful counter-recession action taken to date, in my opinion, and it will continue to have many advantages in future months. It is fast and flexible. There is no other way that so much cash could have been put into the system as fast as this $600 billion was, and if necessary it can be taken out just as quickly. The cash comes in the form of loans. It entails no new government enterprises, no government equity positions in private enterprises, no price fixing or other controls on the operation of individual businesses, and no government role in the allocation of capital across different activities. These seem to me important virtues.[20]

This concession to reality involves Lucas in theoretical breakdown. For, according to New Classical theory, market economies don't need stimulating. They always respond efficiently to shocks. There is no positive demand for money, and, with agents correctly anticipating inflation, the monetary injection can have no stimulatory effect.

Paul Krugman, on the other hand, has consistently argued for a fiscal stimulus based on government spending. He echoes Keynes on the uncertainty of monetary policy. Rather, 'increased government spending is just what the doctor ordered, and concerns about the budget deficit should be put on hold.' The federal government should 'provide extended

benefits for the unemployed . . . provide emergency aid to state and local governments . . . buy up mortgages . . . and restructure the terms to help families stay in their homes. And this is also a good time to engage in some serious infrastructure spending which the country badly needs in any case.'[21]

The New Deal had only 'limited short-run success', Krugman believes, because President Roosevelt's 'economic policies were too cautious.' Obama's people should 'figure out how much help they think the economy needs, then add 50 percent'.[22] Depression economics is back, and 'the usual rules of economic policy no longer apply: virtue becomes vice, caution is risky and prudence is folly . . . To pull us out of this downward spiral, the federal government will have to provide an economic stimulus plan in the form of higher spending.'[23] 'Under current conditions there's no trade-off between what's good in the short run and what's good for the long run.'[24] The bank recapitalization scheme will not be enough: what's needed is closer to 'a full nationalization of a significant part of the financial system'. Krugman echoes most New Keynesians in arguing that the stimulus should take the form of spending, not tax rebates (except to the very poor), since part of the rebates will be saved, not spent.[25]

By contrast, the freshwater economists have been almost unanimously against fiscal stimulus. Typical is the University of Chicago's Gary Becker – also a Nobel laureate – who warned that 'the true value of these government programs may be limited because they will be put together hastily, and are likely to contain a lot of political pork and other inefficiencies.' Becker says that, in that case, spending could do more harm than good. An analysis by a taxpayer group, Americans for Limited Government, shows that Obama's $800 billion stimulus includes $200 million for beautification of the National Mall and millions for new cars for federal bureaucrats.[26] There was also a flap over contraceptive-related spending. If cars and condoms qualify as emergency 'stimulus' spending, what doesn't? These criticisms echo conservative attacks on the New Deal's 'boondoggles'. In fact conservative economic historians argue that the New Deal hindered what would have been a natural recovery from the Depression.

At the level of theory the conservative case against fiscal stimulus is a re-run of the British Treasury argument against public works in 1929–31. The British Treasury then argued that either you must print new money

or 'take it away' from existing uses. This was repeated in 2009 by Professor John Cochrane of Chicago University:

> First, if money is not going to be printed, it has to come from somewhere. If the government borrows a dollar from you, that is a dollar that you do not spend, or that you do not lend to a company to spend on new investment. Every dollar of increased government spending must correspond to one less dollar of private spending. Jobs created by stimulus spending are offset by jobs lost from the decline of private spending. We can build roads instead of factories, but fiscal stimulus can't help us to build more of both.[27]

Paul Krugman was enraged, pointing out that the conservative argument was re-run of the 'Treasury View' of the 1920s.

> If there was one essential element in the work of John Maynard Keynes, it was the demolition of Say's Law – the assertion that supply necessarily creates demand. Keynes showed that the fact that spending equals income, or equivalently that saving equals investment, does *not* imply that there's always enough spending to fully employ the economy's resources, that there's always enough investment to make use of the saving the economy would have had if it were at full employment.
>
> Getting to that realization was an awesome intellectual achievement. That's why it's deeply depressing to find, not that people like [John Cochrane] disagree with Keynes's conclusions but that they're obviously completely unaware of the whole argument.[28]

Krugman's point is irrefutable. The contention, as a BIS Report put it, that 'persistently high levels of public debt will drive down capital accumulation, productivity growth and long-term potential growth potential' is true, provided the economy is at or near its production possibility frontier. In such a situation, a high and persistent level of public debt would 'crowd out' more profitable private investment. But this is not our situation. When output is 6% – possibly more – below potential, as measured by prior trend, an increase in the public debt is not at the expense of capital accumulation. It replaces the investment that is not taking place because the economy has shrunk. Governments are spending so much because the private sector is investing so little. Premature 'fiscal consolidation' risks turning off the life-support systems on which most developed economies currently depend.

The monetarist argument that printing money is a necessary and sufficient condition for the revival of private spending is equally flawed. It rests on the view that if people suddenly find themselves with double the cash they want to hold, they spend the excess buying goods or investment, thus raising prices and output. This would be true if people's actual cash balances equalled their desired cash balances. But when economies are experiencing a 'balance sheet recession', this is not the case. Banks, households, and firms are seeking to replenish their cash balances to pay off debt. The stock of money (the money issued by central banks) has increased much more than the supply of money flowing into deposits. The monetarist argument ignores the pressure to rebuild private sector balance sheets badly weakened by falls in asset prices, housing in particular, which has everywhere pushed up the private sector saving ratio. Experience of Japan's great recession of the 1990s confirms that if the private sector is de-leveraging – reducing spending to reduce its debts – then public sector de-leveraging – cutting its deficit – will deepen, not lighten, recession. This is what Keynes dubbed the 'paradox of thrift'. To get out of a recession, it is not the quantity of money which matters, but its spending, and as Keynes said in 1936 'there's many a slip 'twixt cup and lip'.

CONCLUSION

The case for Keynes is quite simple. He might not have predicted that the financial collapse would occur when it did – indeed, he would have rejected the idea that economic life consists of predictable events – but he would certainly have thought a financial collapse possible, and even likely, given the extent to which governments had abandoned any serious attempt to avert such a thing. An economics infused with his spirit would have set up a system which took precautions against blizzards like this happening. The dominant economics of the last thirty years encouraged and promoted a system in which financial blizzards could occur, and more often than once in a hundred years. It did so from a mistaken belief that all risk can be correctly priced and that therefore financial markets are optimally selfregulating. The New Keynesians

who challenged the policies of the market fundamentalists were defeated because they accepted their basic premises: and in economics logic is everything. But what kind of logic? It is time to introduce the Master.