Mainstream Methodology, Financial Markets and Global Political Economy[1]

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Abstract

The experience of financial markets in the global economy is open to a variety of interpretations, based on different framings, with important consequences for economic policy. Knowledge about financial markets, and the methodology employed to build it, can be understood in terms of framing. The underlying argument of the paper is in favour of considering the framing financial markets within an open-system approach, allowing input from other disciplines, as well as taking account of the real, often performative, implications of (closed-system) mainstream framing by policy-makers. The methodological underpinnings of, and interdependencies between, different framings among theorists, policy-makers, market players and users is explored.

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1 Introduction

Global political economy in the area of finance is rarely tranquil. But there is currently (in late 2007) an unusual degree of anxiety about sources of turbulence: notably what are perceived as the weakness of the primary international form of money (the US dollar), structural payments imbalances, the scope for contagion from the subprime mortgage collapse in the US to other financial systems, and the interdependence between the monetary policy actions to address it. But this situation is open to a variety of interpretations, and thus to a variety of policy responses. This paper is concerned with the origins of these interpretations, namely the way in which knowledge about financial markets is variously construed and constructed, and the role that different understandings play in theory policy and practice. We approach this through the concept of 'framing', as something which is interdependent with how reality is understood on the one hand, and methodology on the other.

Following a reflection on the meaning of framing, we start by considering the way in which mainstream economists frame financial markets. The way in which meaning is attached to concepts and terms, in which the objects of study's frames are represented, and in which questions are posed and answered, depends on the methodology employed. We explore the positivist methodology which is employed in mainstream economics in order to understand how financial markets are framed for analysis. The new behavioural finance is considered as a case study of how this methodology has been adapted in order to change the frame (allowing for a change in the way in which agents frame their choices), but nevertheless retain its essential elements. This follows from the central framing concept of rationality. The old behavioural economics approach is then considered, drawing on very different, case study, evidence which includes evidence on framing by households and businesses.

International organisations and national monetary policy makers and regulators increasingly draw on this academic literature in order to formulate policy with respect to financial markets. However the policy tool of manipulating expectations poses a reflexivity issue, whereby the authorities attempt to provide the frame for financial markets. Further, international organisations who also employ this literature set policy agendas for national governments (such as structural adjustment programmes) which encourage national governments to adopt the same framing (if only to reap the advantage of meeting conditions for lending, for example). We consider the different framing of financial markets by the authorities in the following section.

The players in financial markets in turn frame these markets in a yet different way, discussed in the fourth section, requiring even more attention to the market process itself, rather than simply prices. The analysis of this framing involves recourse to sociology and rhetoric as well as psychology. Framing in financial markets themselves is considered in the sixth section. These market players can be distinguished from market users. First, governments themselves use international capital markets for placing reserves; even in the post-Bretton Woods era, with generalised exchange rate floating, these can be substantial, and particularly so in the current climate of structural payments imbalances and limitations on floating (as with the Renminbi). For those countries facing structural

deficits, international capital markets are a potential source of finance; limits on credit availability, and/or the need to accept IMF conditionality, has real consequences for the domestic economy.

We conclude by reviewing this discussion in relation to the framing by different groups, and the methodological issues involved in theoretical framing in relation to framing in the economy, as a means of understanding the issues surrounding global financial markets.

2 Framing

The general meaning of the term 'framing' refers to the way in which something is presented and thus perceived. In discourse analysis it refers more specifically to what is included and what is excluded; discourse analysis is concerned with the interplay between different framings. The concept therefore fits well with an analysis of economics and the economy in terms of open and closed systems. A closed system is one where what is included and what excluded is predetermined, and has fixed meaning. A system is open if it fails to satisfy any one of the conditions for a closed system (Chick and Dow 2005). An open system is not a complete free-for-all – otherwise it would not be a system. Arguably reality is completely open at the ontological level, but there is no scope for accessing this reality without some framing. Rather, some boundaries are required to frame knowledge; but in an open system these boundaries (or frames) are provisional and permeable (ie they can evolve, and are not absolute). As soon as we conceptualise experience, and even more as soon as we employ words and ascribe them meaning in relation to concepts and experience, we are invoking some frame or other.

Framing is a necessary feature of discourse and, in turn is generated and transmitted by discourse. Reality is also framed in another sense, by the institutional arrangements, conventions and habits which put some (normally provisional, permeable) boundaries around the scope for acting on knowledge. Indeed there is scope for interdependence between framing at the level of society (or groups within society), and the framing embodied in social arrangements, ie social framing. Indeed in social arrangements, and even more clearly in the political arena (as in governance of the international financial system), which framing dominates is a result of power relations. Thus framing in general is not a matter of individual choice. At a deep level for the individual, we frame our understanding of the world on the basis of what Searle (1995, 1999) calls background, of which we are largely unconscious. Framing further depends on our role in society (and thus on power relations). This role takes on a special character for theorising. Different disciplines frame the subject matter in their own characteristic ways for example. But even within disciplines there can be framing differences, ranging from differences in meaning of terms to differences, through theoretical differences, to differences in policy recommendations. As we will see, this involves differences in meaning of key terms, such as 'rationality' and 'social'.

In economics, the usual application of the framing concept is to the presentation of rational choice problems, and has been applied particularly to financial markets within the new behavioural finance, following the lead of Kahneman and Tversky (1979). But the term has a wider application to questions of knowledge more generally, and thus to

the knowledge of analysts as well as the analysed. This is the more common use of the term in sociology. Indeed there is scope for different framings on the part of analysts and those who are analysed. We will consider these different framings in the context of financial markets, but the discussion could be applied similarly to other areas.

3 The Mainstream Economics Frame

The traditional mainstream way of framing an object of analysis in economics is in terms of a set of facts against which theories arrived at deductively can be tested. Because of the emphasis on exchange, in financial markets, the core facts are prices (of financial assets), and the price of borrowing and lending money (interest rates). Pricing is understood as factoring in expectations of risk, measured by past deviations in prices. While risk includes default risk (as well as risk of variance in asset prices), this used to be the concern primarily for bank loans. Recently, with the growth in credit derivatives, concern about default risk has become a significant factor for securities markets. The pricing of these derivatives, and the structured products consisting of bundles of tranches of securitised loans, thus embodies a probabilistic expectation of default risk, often on the basis of credit ratings by ratings agencies.

International financial markets provide a common basis for pricing international assets, to render international data commensurate. A critical element is the role of currencies in such pricing, and in particular the role of vehicle currencies (the US dollar, the euro, sterling, yen) in performing the unit of account and means of payment functions of international money. But international money also must perform the store of value function; when the key vehicle currency, the US dollar, falls in value, with good reason to expect further falls, alternative vehicle currencies become more attractive. Yet, since what is used as international money is a matter of socio-political convention, founded on confidence, it requires a jolt to confidence for that convention to be challenged. While the current weakness of the dollar creates uncertainty, it still performs an important function in the pricing of international assets. Yet in the current situation, the ‘facts’ of market value in terms of international currencies, as well as the pricing of risk, have lost their transparency and solidity.

It is a central role for international organisations to collate the ‘facts’ of international finance. Thus the Bank for International Settlements (BIS) collects data on international capital flows. The International Monetary Fund (IMF) collects data on such financial variables as the money supply and interest rates. The aim is to provide comparable data series for all IMF members. The data series present the facts on which policy analysis is based.

This method of framing follows from logical positivism, which has been the underlying methodological influence on mainstream economics. Methodology is rarely discussed explicitly. Yet it plays a powerful role in defining economics, as far as mainstream economics is concerned. Logical positivism requires that scientific statements must be testable against facts (in principle, if not in practice), and the conventional judgement (again rarely discussed) is that only mathematical statements are precise enough for

robust testing. So the framing of mainstream economics in general has become one of formal mathematical representation.

Theories (such as the McKinnon-Shaw justification for financial liberalisation policies) are derived from the axioms of rational individual behaviour, which presume that agents are utility maximisers; in financial markets this is taken to mean profit maximisers (subject to given preferences with respect to taking on or avoiding risk). Rationality is given formal meaning by the axioms (complete preferences, for example, where preferences themselves are framed in a particular way). The framework has traditionally presumed perfectly competitive markets (although, as we shall see, a limited form of market imperfection is now also analysed). This is particularly appealing since it makes the required mathematical representation more tractable. And financial markets have generally been regarded as the markets which come closest to the idealised perfectly competitive market. These markets are normally highly active, information flows are good, and the profitability of arbitrage ensures that mispricing is arbitraged away. Reforms to create such markets where they do not exist in emerging market economies is a key plank of IMF and World Bank policy (de la Torre et al, 2007).

Equilibrium plays a central role in mainstream analysis (again framed in a particular, formal, way); Weintraub (1985) notes it as a Lakatosian positive heuristic to conduct analysis in terms of equilibrium. Thus a core model is the capital asset pricing model (CAPM), which demonstrates how arbitrage between financial assets (as perfect substitutes) drives all asset prices to their equilibrium level (taking account of probabilistic risk and return). But it imbues the analysis more fully in focusing attention on equilibrium as the expected end-state of market processes. Thus for example, the current market turbulence is seen as a 'correction' back to equilibrium (given some market distortions which had created a disequilibrium).

The notion of 'facts' also is normally taken to be unproblematic given the huge sets of price and trading data. Much of finance theory developed without reference to data. But the profit potential from using finance models to predict market prices has encouraged a huge growth of empirical financial analysis, exemplified by the Nobel award winning work of Merton and Scholes (and Black), which was actually used in practice in LTCM. A further impetus has been provided by the Basel II framework which encourages financial institutions to model, and quantify, their own risk profile. This development has privileged prediction over explanation in appraising theories. Following Friedman (1953), if predictive success is the primary goal of theory, then the content of the theory, and in particular the realism of assumptions, is of secondary importance. A particular consequence was a justification for treating economic behaviour (expressed in terms of rational economic man) as separable from other aspects of behaviour. But given the conflicting desires to build theory on realistic assumptions, for theory to be formally internally consistent, and the difficulty of separating out actual economic behaviour from non-economic behaviour when examining evidence, a divide has built up, as elsewhere in economics, between applied work judged by predictive success on the one hand, and pure theory judged by internal consistency (given the rationality axioms) on the other. Neither in practice can be consistent with logical positivism (ignoring the deductive process or

empirical testing, respectively). But the way in which financial markets are analysed employs essentially the same general frame. Further, since pure theory is abstract and not directly tested, and since applied work either adopts this theory or purports to avoid theory (letting 'the data speak for themselves') framing issues are not thought to arise.

But the mainstream frame has itself evolved from the 1980s to take on board a much wider range of evidence than was previously the case. Thus for example the New Keynesian approach (sparked off by Stiglitz and Weiss, 1981) takes on board the idea (derived from experience) that financial assets are not all perfect substitutes; in particular, SMEs have limited access to capital markets and are therefore potentially constrained by lack of availability of bank finance. The analysis focuses on a particular way of framing credit allocation under asymmetric information. However, while the resulting theory was prompted by a real-world problem which had been ruled out by the perfect substitutability assumption, and by a new way of framing bank behaviour, the actual theory development conforms to the mainstream approach in the framing of the problem and seeing banks' framing in relation to the benchmark of abstract rational fully-informed behaviour, with a focus on equilibrium. The source of the problem is identified as asymmetric information as to default risk, ie a market imperfection which produces a sub-optimal equilibrium outcome of credit rationing. The rationality axioms remain intact (extended to rational expectations, except in the one area of default risk on the part of individual borrowers), and the empirical testing is done by simulations rather than by 'real' data. Stiglitz (2002a) puts forward his general approach of focusing on information problems as an alternative paradigm to what he calls the 'competitive paradigm'. The account of the framing in terms of information issues draws explicitly on a realist comparison with abstract mainstream theory, and incorporates real time in the form of hysteresis. Nevertheless the theoretical outcome is constrained by its formalist, equilibrium-focused, expression, with the 'competitive paradigm' as benchmark.

Stiglitz, in accord with the new institutional economics (to be distinguished from 'old institutional economics', see Hodgson 1998) has encouraged the consideration of governance issues, in particular to consider potential problems of asymmetric information between sovereign borrowers and international financial markets. Thus the consensus reached in the IMF-based analysis of the South-East Asia crisis of 1997 was that the cause had been concealment by South-East Asian governments of the underdeveloped governance in their economies, and in particular their banks (see for example Stiglitz's, 2002b, critique). Had there been sufficient transparency (and thus perfect knowledge of 'the facts'), the capital inflows would not have occurred in such volumes in the first place. But IMF thinking has moved further towards the Stiglitz position to incorporate also the view that governments, and their governance, should be an element in structural adjustment. The Washington Consensus has evolved, such that good governance is now understood to be a necessary condition for the successful operation of free markets. This has extended the apparent purview of economics, but otherwise appears to leave the nature of the mainstream approach to the subject intact, albeit with a new interest in information asymmetry in competitive markets.

4 Inputs from Psychology: Behavioural Finance

It was not always the case, but mainstream economics evolved to be a 'separate' science (Hausman 1992), such that rational optimising behaviour applied to market behaviour, while other motivations and practices are relevant to non-economic behaviour. Indeed other disciplines supported this divide by focusing on non-market behaviour, including the behaviour of governments themselves. But in the last few decades, not only have economists focused increasing attention, in public choice theory, to public sector (non-market) behaviour (a tendency employed, as noted above, in the change in IMF analysis), but also psychologists and sociologists in particular have been studying market behaviour and have influenced economic analysis of market behaviour. This was appealing in offering what was seen as greater realism, it offered new explanations for apparent anomalies with the standard subjective expected utility (SEU) approach to rational behaviour, and it offered solutions to the sticking point of multiple equilibria arrived at in areas such as evolutionary game theory and rational expectations theory (Sent 2004).

Thus another type of evidence, derived from experiments and drawing on psychology, opened up yet another fruitful line of enquiry, known now as behavioural economics. We refer to it here as the 'new behavioural economics' to distinguish it from the different pre-existing approach of the same name (Sent 2004; Earl 1988, 2005; the differences parallel those between new and old institutional economics). The laboratory evidence attracted attention because it seemed to contradict the rationality axioms, ie it seemed to strike at the core of the mainstream frame. Kahnemann and Tversky (1974, 1979) have drawn on the field of psychology to suggest that agents are not rational in the way that is assumed by the SEU approach, introducing heuristics and biases in the exercise of judgement where cognition is limited (or rationality bounded). In particular, they demonstrated that agents choose according to how a question is (psychologically) framed. Choice is then not a matter of simple classical logic, but brings with it the preconceptions and preferences of the chooser, apparently generating 'irrational' choices. The psychic frame of the chooser is by implication different from the (rational) frame of the analyst, and the analysis of this framing starts from psychology.

While there is reference in behavioural economics to social framing, as in the conditioning of choice by social norms, there is little exploration of how it arises, although sociology might well have provided insights. Because of the axiomatic focus on atomic individuals, the influence of society is limited to the introduction of social norms as exogenous constraints on rational individual behaviour, without explanation for the emergence of these norms or the reasons that rational individuals accept them. Indeed the examples of framing remain very limited.

The new behavioural economics addresses a wide range of framing factors which had earlier been raised in the old behavioural economics literature (as we shall discuss below). But the goal is to conform with the traditional methodological approach. As Hong and Stein (2007: 126) put it:

> The enduring appeal of classical asset-pricing theory over the last several decades owes much to its success in forging a consensus around a foundational modelling platform. This platform consists of a core set of

> assumptions that have been widely-accepted by researchers working in the field as reasonable first-order descriptions of investor behaviour, and that – just as importantly – lend themselves to elegant, powerful, and tractable theorizing.
>
> If behavioural finance is ever to approach the stature of classical asset pricing, it will have to move beyond a large collection of empirical facts and competing one-off models, and ultimately reach a similar sort of consensus.

Indeed it could be argued that the approach to framing analysis of financial markets has therefore not fundamentally changed, and has determined how the economics literature has developed this new importing of ideas from psychology. Thus, for example, efforts are made to explain diversity of framing as differences in Bayesian priors due to information limitations (Hong and Stein 2007). As Kahneman (2003: 1469) put it, 'theories in behavioural economics have generally retained the basic architecture of the rational model, adding assumptions about cognitive limitations designed to account for specific anomalies'. The unit of analysis is still the individual actor, and the framing by the individual is still construed in terms of constraints (social norms, bounded rationality etc) which impede the perfect functioning of markets (Klaes, 2006), with rationality under perfect competition the reference point. For many the goal is the logical positivist one of refining the rationality axioms in order to generate theory which accords better with the evidence.

There are tensions between the normative and the descriptive (with respect to rational behaviour) and between the theoretical and the empirical. But this is nothing new, and can be traced back at least as far as Mill. The end result has been fierce debate between the rational choice theorists and the new behavioural economists as to which conforms better to logical positivist principles. Rational choice theorists claim to generate clear hypotheses which are testable, using sophisticated mathematics, and which do not employ ad hoc reasoning. New behavioural economists argue that their theory is more empirically applicable, being consistent with actual choices made under experimental conditions, as well as explaining aggregative empirical phenomena which are anomalous in relation to classical asset-pricing models (Brav, Heaton and Rosenberg, 2004).

While experiments are the primary source of evidence on framing among market users in the new behavioural economics, old behavioural economics aims to understand market framing through case studies, and has always drawn on other disciplines, notably psychology and sociology. Rather than the benchmark of full information, this approach focuses on the difficulties faced in practice in building knowledge appropriate for decision-making, and thus regards the scope for different framing as the norm (rather than a sign of irrationality). In order to interpret information and make financial decisions in a complex financial environment, and under uncertainty about the future, businesses and households need to apply some framing. The core method of case studies is designed to promote understanding of the way in which economic actors frame problems and derive strategies to deal with them. This represents an attempt to understand framing in real contexts, where separability (eg along disciplinary lines) is limited. This contrasts

with the abstract separability involved in the gathering of experimental evidence. (It is not the only possible approach to identifying framing in the economy; discourse analysis is an alternative method.)

As Earl (2005: 1) puts it, old behavioural economics 'sees everyday life as a process in which humans with limited cognitive capacity try to cope with both information overload and the absence of relevant information and knowledge by evolving targets for what seems feasible and systems of rules for trying to find ways for meeting these targets'. Cognition is not limited by the kind of rationality which is a core element of mainstream framing. Nor is limited information understood in terms of the benchmark of full information (as in the SEU approach). Rather it is understood as the normal condition of open-system knowledge in an open-system environment, where framing is an essential feature of knowledge in order to make it manageable as a basis for action.

A key figure within this approach is Herbert Simon (1982), who explored the nature and implications of cognitive limitations within his theory of bounded rationality (see Sent, 2004). While the new behavioural economics draws on the concept of bounded rationality, we have seen that the methodological framing comes from mainstream economics, with perfect rationality and full information providing the benchmark. Within mainstream economics, Simon's contribution is understood as introducing a cognitive constraint on full information. Old behavioural economics rather focuses on the strategies by which individuals and businesses cope with both too much and too little information, and how decisions therefore are framed. From this follows a different framing of behaviour as satisficing rather than optimising. The emphasis is on understanding framing by businesses and households as being context-dependent manifestations of some general framings (bounded rationality, satisficing etc). This contrasts with the new behavioural economics focus on framing by agents in terms of deviations from the framing of abstract rational economic man.

Earl (1990) provides a full account of how old behavioural economics may be developed with respect to financial systems. More recently, he provides an example of the application of old behavioural economics to finance, when he considers financial regulation (Earl, 2005). This analysis addresses household financial behaviour, where there is poor understanding of financial deals and therefore the need for regulatory protection. It also addresses the behaviour of financial institutions where rules of thumb are employed for credit risk assessment in the absence of the basis for reliable numerical estimation of risk, and the type of regulation which would therefore be appropriate.

The Policy Maker's Frame

The goal of the policy-maker in building up knowledge of the financial sector is not necessarily the same as the academic economist, although policy-makers draw significantly on academic expertise. Policy-makers are required to act, regardless of the status of their knowledge, so that the emphasis has been on prediction of the state of financial markets, and of the effects of policy action. There is inevitably also more of a focus on the process by which policy is put into practice, and whether and how that

process affects the outcome. For national monetary authorities, this is particularly relevant to the effect on expectations, and thus requires a focus on cognition, learning and social norms.

For international organisations, the nature of action is different. For the BIS, action consists of negotiated guidelines on such matters as capital adequacy ratios, requiring a consensus as to the analysis of a problem (the need to place limits on portfolio expansion in international assets according to the risk profile of individual financial institutions), and what is regarded as an appropriate solution which will be adhered to without formal regulation. Here the 'facts' are open to more contestation, notably the measurement of risk. But in fact a major driver of the development of the modelling of quantifiable risk has come out of this process.

For the IMF, policy action too requires an analysis of the international financial situation on the one hand, and the circumstances facing individual borrowers from the Fund on the other. The requirements of international diplomacy, that all member governments be treated equally, supports the application of a common analysis to all economies (such as the Domestic Credit Expansion analysis of the 1980s). The mainstream economic approach of aiming for universal theory, to be tested against objective facts, fits this requirement well. Similarly, the Washington Consensus design of structural adjustment packages applied a common analytical approach to resolving the balance of payments difficulties of borrower nations. In particular these packages included financial market liberalisation, designed to increase the efficiency of financial markets.

The engagement of borrowing governments with Washington institutions, and market knowledge about such engagement, introduces a significant element of performativity. As Gay (2007) explores, governments subjected to IMF conditionality adjust their own analysis and behaviour to achieve their own goals, given the constraints of the IMF conditions. Their own framing must incorporate the framing in Washington in order to engage with the IMF. Not only is there pressure to treat data series as 'facts', but the analysis itself may become accepted as 'fact' (Basu 2003). This phenomenon extends also to international capital markets. In the wake of the 1980s debt crisis, capital markets turned to the IMF for information about developing country borrowers, accepting their analysis effectively as fact. Now the IMF is extending this role to advising on inflation targeting as if it were an uncontested superior approach to domestic monetary policy, and many transition economies in particular have accepted this analysis for their rhetoric, if not their actual practice (see Gabor 2007). This accords with Cammack's (2004) discussion of the World Bank as evolving into a Knowledge Bank, whose aim is to promote the development, through social transformation, of behaviour and institutions for a market economy.

Policy-making at the national level covers a range of activities, including the regulation and supervision of financial institutions, monetary policy and management of the national debt. Increasingly these functions have become institutionally separated; indeed such separation has been a condition for participation in European Monetary Union. So each authority builds knowledge relevant to its own area of responsibility, which then provides

the relevant frame. These institutional arrangements then become significant where interdependencies emerge (as in the current financial turmoil) and communication is required across different frames of reference. However we will focus here on monetary policy as if it were an isolated activity which can function within its own framing.

The focus of policy-making on activist monetary policy dates from the late 1970s with the emergence of global monetarism as a means of addressing inflation. This approach rested on an empirical relationship between monetary aggregates and the price level, such that anti-inflationary policy should be directed at controlling the money supply and thereby aggregate demand. Large macroeconomic models (built in the logical positivist tradition) were then employed to predict trends in aggregate demand and the required rate of growth in the money supply to produce the required rate of inflation. But the academic framing of this approach to policy required a specification of variables as endogenous or exogenous, and had made the money supply exogenous. This framing however proved inadequate, as it became apparent that the money supply could not be directly controlled, and policy shifted to the interest rate as the instrument rather than the money supply. For many academic models however, the money supply remains exogenous for reasons of internal coherence (and indeed with the mainstream approach to framing financial markets, the two can indeed be treated as interchangeable), driving a wedge between academic and policy framing (Dow, 1997).

More generally, the failure of the models to predict well reduced their usefulness and policy-makers started to discuss publicly how better to frame their policy-making. The Bank of England (1999) in particular has explored the implications of the uncertainty surrounding their knowledge of the economy and the likely effects of policy actions. The Bank has advocated a pluralist approach in the sense of drawing on a range of models rather than one core model alone, and the importance of supplementing model-based knowledge with judgement. Similar discussions within the US Fed and the ECB have encouraged an exploration of model uncertainty (uncertainty as to which is the best model to use) in the academic literature (see for example Hansen and Sargent, 2004). But the framing of model uncertainty in the academic literature reflects the presumption that there is one best model of the economy waiting to be identified, and that error in identifying it can be captured in a probability distribution. This way of handling uncertainty is required by the logical positivist approach, which encourages the formulation of a mathematical model suitable for empirical testing (although in practice the testing is by simulation, which involves representing facts in accordance with the frame of the model) (Dow, 2004).

This literature continues to represent expectations in the economy as conforming to the rational expectations hypothesis (something required by internal coherence within a logical positivist framework; see Sent, 1998). Central banks increasingly see influencing expectations as a key tool of monetary policy. This can be seen as consistent with rational expectations, ensuring that the public form expectations on the same basis as the central bank. Indeed this framing of central bank communication follows the academic literature, with its focus on the framing of the economy in terms of one best model (Walsh, 2007; Dow, Klaes and Montagnoli, 2007). But the awareness of variety of opinion among

policy-makers, the judgement involved in policy-making and the range of uncertainties facing the central bank makes central banks very sensitive to the way in which they communicate. This implies that there is an awareness that the formation of expectations does not conform in practice to the frame of rational individual choice on the basis of a given set of facts. Even if there were a given set of facts to communicate, there is clearly awareness of signal uncertainty (Dow, Klaes and Montagnoli, 2007) or what Walsh (2007) calls 'communicating uncertainty'. Yet Walsh, like others in the mainstream literature, conveys a sense of monetary policy framing and theoretical framing converging.

Framing issues are central to communication. In judging how the public interpret their communications, the central bank needs some understanding of the framing of finance by the different groups. In communicating monetary policy, the central bank is simultaneously addressing a range of constituencies, each of which may frame finance differently. Thus for example, in communicating to an audience attuned to the framing of mainstream theory, it is appropriate to refer to 'the interest rate' in the abstract. But for financial markets and in particular for individual businesses and households, there is a complex structure of rates with variable relationships with the policy rate. So some signal uncertainty may arise simply from confusion between framings. But within the mainstream the different ways of communicating refer to a common monetary-policy-theoretic frame.

While media headlines may be addressed to the household and business sectors, the detail of policy announcements is addressed primarily to players in financial markets (arguably the sector with the most power over financial outcomes for households and non-financial business). Thus for example, when the Bank of England refers to market expectations of inflation, the data are derived from the inflation expectation implicit in the pricing of financial assets. Communications in turn generally involve the technical language employed by market players. We turn now to consider how financial markets are framed by those who are active in these markets.

Inputs from Sociology and Rhetoric Studies

While the new behavioural economics does not explore framing itself, we can look to sociology for assistance. The conventional theoretical account of market players in economics is framed by the rationality axioms, and market players do employ models which presume this basis for behaviour. One of the key features of this logical positivist approach to building knowledge within financial markets is to price assets in terms of risk, based on historical data. This presumes that the future distribution of an asset price is knowable, continuing patterns derived from past experience, ie that the basis for value is an ergodic process (Davidson 1982-83). The key to asset-pricing is estimation of risk, but there is no accommodation in these models for uncertainty as unquantifiable risk. The implication is that it is simply a matter of skill to identify correct pricing and then to identify deviations which would allow profits from arbitrage. The highest profits go to the companies with the greatest skill, and we have seen the increasing reliance on 'quants' in financial markets as a way of making profits in derivatives markets. Since there are differences in profitability within the financial sector, the situation does not

conform to the strong rational expectations hypothesis, whereby all players share the same (correct) model. But the logical implication of framing the situation in this way is that learning will erode profits, and it is only through innovation in new products and random shocks, both of which require new learning, that profits can still be made.

But sociologists who have explored the actual practices within financial markets (eg using interview evidence) cast doubt on this way of understanding framing within financial markets, and indeed see quantitative models only as partial contributors to framing. Thus MacKenzie (2005) demonstrates in the context of LTCM that judgement (which cannot be formalised) is required in addition to modelling. This explains why LTCM could continue for a long time to make much higher profits than others who were copying their models. This finding is also consistent with the view now expressed by central banks that they require to exercise (non-formalisable) judgement to supplement modelling. So the important question, in shifting the framing to focus on judgement, is how judgement is framed and formed.

The greatest illumination of this question comes again from the economic sociology literature, which focuses on the process of judgement formation within the society of market traders. Traditionally, even within sociology, market behaviour was seen as 'economistic' (ie based on rational individual behaviour), and contrasted with non-market behaviour, which was the province of sociology. For Pareto, the distinction was between 'logical' and 'non-logical' behaviour, respectively (Klaes, 2006). But efforts are increasingly being made to re-embed markets as ideas and practices of social co-ordination within their political, social and cultural contexts (Bevir and Trentmann, 2007).

Information itself, or 'the facts', is seen in sociology as including social interactions as well as the more conventional forms, notably prices. But even prices are understood in social terms rather than in the abstract (as in conventional economics). Preda (2007) classifies the sociological analysis of financial markets, and in particular how market information is conceptualised, as falling within three, complementary, categories. In sociology, as in economics, there is a range of methodological approaches associated with different framings. First, there is the 'new economic sociology' study of markets as social networks and as groups, analysed in terms of formal models. The argument is that how these networks shape, not only 'the dynamics of financial transactions', but also 'how they influence price, volume and volatility' (Preda, 2007: 508). Second, there is the 'neo-institutionalism' which explores the institutions within which networks operate, and their political dimension. This approach draws more on quantitative and qualitative evidence, but focuses more on power relations than the processes by which knowledge is produced.

Power relations are more the province of the third, social studies, approach, which rests on detailed field information rather than formal modeling or theory testing. One of the outcomes of this approach is the argument that technology is not neutral with respect either to the understanding of 'facts' or to the organisation of markets. Financial cognition is seen as 'a set of complex, interlocked processes, ranging from perception and

memorization to classification and the calculation of trading operations, and implying not isolated individuals, but group work, actors as well as technologies' (Preda, 2007: 521). A key concept (developed in this context by MacKenzie, 2006) is performativity – the effect of the framing of financial markets in the academic literature on the actual behaviour of financial markets. MacKenzie (2005) demonstrates how competitors of LTCM copied their market strategy, such that there were no counterparties with whom to trade when the financial crisis broke. (This crisis, incidentally, occurred because framing risk as historical variance proved inadequate when there were structural shifts in markets, ie the markets were non-ergodic.)

The rhetoric approach to economics has emphasised the use of language in persuasion more generally. Indeed this approach has been extended to a framing of market processes themselves as an as an exercise in 'conversation' (McCloskey, 2007). McCloskey demonstrates that a high proportion (around a quarter) of all economic activity involves persuasion. Within the financial sector this includes the work of financial advisors, and the advertising of financial instruments. But more fundamentally it includes the communication between market players which encourages the buying of one class of asset, the selling of another, a lack of confidence in predictions and so on. It also includes the cementing of social conventions (to accept this asset in payment but not that) and the spreading of the idea to make a run on a bank, for example. The central bank is continually engaged in conversation with market players to encourage them to hold a particular view. And governments engage in conversation with international organisations. New frames are adopted as a result of successful persuasion. Clearly a core element of persuasion is power.

Framing, Methodology and The Contribution of Other Disciplines

We have seen in the previous discussion that financial markets are framed differently by different groups, but the greatest difference arguably is between the mainstream theoretical approach and the experience in the economy. The importation of ideas, and new types of evidence, from other disciplines, notably psychology, have enriched the theoretical account. And they have done so by suggesting that actual framing in the economy is different from what is conventionally assumed by the abstract conception of rational economic man. They do so by introducing alternative ways of framing this framing in the economy. But the extent to which these new avenues can be pursued has been constrained where there is insistence on retaining rational economic man as the benchmark, and formal equilibrium models as the method. Much of what has traditionally been understood to be non-economic remains outside the discussion, while real experience seems to involve a fundamental influence of the 'non-economic' on market behaviour.

The choice as to how to frame theory is a methodological question. There is no absolute standard by which to judge any methodology; each has its benefits and costs relative to the others. But critical realists (notably Lawson 1997, 2003) argue that the benefits of designing the theoretical frame to reflect the nature of the subject matter outweigh any costs in terms of lack of elegance, or indeed of definitive predictions. Of course how the

nature of the subject matter is understood is itself a matter of framing. Critical realists share with others (such as old behavioural economists) the view that the economy is an open system, in the sense that it does not satisfy the conditions for internal closure (no evolution in internal relations between elements of the system) or external closure (no evolution in the designation of endogenous and exogenous variables) (see Chick and Dow, 2005, for a more general set of conditions for closed and open systems). It is argued that an open social system is best understood by an open system of knowledge. Further it is argued that these conditions mean that knowledge in the economy conforms to an open system. While some of that system may be captured by formal mathematical techniques, other methods can add further knowledge. Also, since much of the forces for change in social relations and in external forces are the traditional subject matter of other disciplines, it is natural to anticipate knowledge benefiting from interdisciplinary exchange.

We have attempted to show here a contrast between the way in which contributions from other disciplines to our understanding of framing in financial markets results in very different theoretical framing. It depends on whether incorporating this broader view of framing in the economy is seen as a modification of mainstream theory (applied as it were from the 'top down' from theory to experience) on the one hand, or as input to the framing of real experience which influences the nature of open systems theorising by economists (from the 'bottom up') on the other. Nevertheless, any 'bottom up' approach, which takes the framing in the economy seriously, must itself employ some framing or other. Thus old behavioural economics has thrown up the framing concept of satisficing, for example.

Input from psychology and sociology suggests that framing is the manifestation of discourses which differ for good reason (in the broadest sense of the term). If knowledge is framed by political power, by social convention, by institutional arrangements, and by sentiment, and conditioned by uncertainty resulting from the nature of social systems, and by cognitive limitations, then we are far removed from a world of 'facts'. Inevitably there will be different framings. Social interactions, and particularly power relations, mean that there will be reflexivity – one group's framing will impact on the framing of other groups. Indeed there is likely to be performativity – one group's framing altering the subject of the framing.

For these factors to be analysed satisfactorily, economic analysis of financial markets needs to be conducted within an open system of knowledge; this is a prerequisite for drawing on the full contribution which other disciplines can make – not just those contributions which can be expressed within a closed-system mainstream approach. It has been argued elsewhere (Dow and Dow, 2006; Shin, 2006; Gay, 2007) that the key is to use an approach which allows for some generalisations on the one hand, but respects particularity on the other. This has particular relevance for the approach taken by international organisations. De la Torre et al (2007) provide a detailed explanation of the failure of Washington Consensus financial liberalisation policies, and conclude with a call for 'modesty' (an interesting counter, from World Bank staff to the monist

Knowledge Bank approach characterised by Cammack, 2004). The source of the struggle between approaches may well be political, but it is dressed in methodological clothing.

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