

Framing Finance: A Methodological Account

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Abstract:

The way in which financial markets are framed depends on who is doing the framing, although there are reflexive interdependencies between these framings. Mainstream economics frames financial markets as archetypical competitive markets, focusing on prices as the key information on which to base analysis. This follows from traditional positivist methodology where computability is the key to theory appraisal. Central banks draw on this analysis for their own framing, but modify it significantly in the face of the requirement to take decisions under palpable uncertainty; some understanding is perceived to be necessary for prediction. Participants in financial markets in turn employ quantitative models for forming their expectations; in conditions of market turbulence the limits to these models become evident, and indeed material to prices themselves. Further, for these participants, markets are a social phenomenon. Finally the households and firms whose experience of financial markets enables or constrains spending frame financial markets in yet another way. The underlying argument of the paper is that the way in which financial markets are framed in theory should reflect the different framings in the economy, and that this would benefit from input from other disciplines.

Keywords: framing, finance, monetary policy

JEL classifications: B0, E44, E58, G02

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Introduction

This paper is concerned with the way in which knowledge about financial markets is construed and constructed, and the role that different understandings play in theory policy and practice. We approach this through the concept of ‘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. 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, i.e. social framing. Thus framing in general is not a matter of choice. At a deep level, 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, 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.

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. In the next section 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.

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. Unquantifiable uncertainty, which evades the mainstream frame, must also be addressed in this exercise. We therefore 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, 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. These financial market players can be distinguished from non-financial corporations and households, for whom changes in asset prices, interest rates and availability of credit, and expectations as to future changes, have real consequences for production, consumption, real investment and employment – either enabling or constraining them. Their framing of financial markets is different again, conditioned by limitations on knowledge about financial markets, and the mechanisms for generating experience with finance. Studying this framing by businesses and households is the focus of the old behavioural economics (with its links to institutional and evolutionary economics), drawing also on sociology and rhetoric. The core method, which involves study of framing in the economy, is the case study. We also consider Minsky's financial instability hypothesis as another example of a theoretical framework built on a particular study of framing by businesses, banks and households.

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.

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. In financial markets, the core facts are prices (of financial assets), and the price of borrowing and lending money (interest rates). There are also values of trades, but pricing can occur independently of trades. The one stock to attract significant attention is the stock of money, which has significance for the monetary theory of inflation. Framing of these facts is not regarded as an issue.

This method of framing follows from logical positivism, which has been the dominant methodological influence on mainstream economics, as expressed for example in introductory textbooks. However, methodology is only rarely discussed explicitly, though 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. This has led to an uncomfortable methodological bifurcation between theory which puts a high priority on internal mathematical consistency (though the resulting propositions are generally taken to be testable ‘in principle’) on the one hand, and theory whose formulation is designed for empirical testing on the other hand. (The two are often used together, where theory is derived on the basis of the axioms of rational individual behaviour, but then expressed in reduced form for empirical testing.) This bifurcation, as we shall see, has become evident in debates over the implications of experimental evidence on individual behaviour.

Theories 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). This does not preclude a transition into a different, broader understanding of rationality as in ordinary discourse for purposes of persuasion beyond the axiomatic framework. 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 arbitrated away.

Equilibrium plays a key 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, 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 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 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 was

provided by the Basel 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 are 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, small and medium-sized enterprises 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. The source 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.

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. But in the last few decades 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 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 this, 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. There has been an increasing tendency to cite Adam Smith’s (1759) *Theory of Moral Sentiments*, where he develops a theory of human nature in terms of man as a social being, i.e. where self-interest is fundamentally conditioned by the social nature of being. But again the way in which this is framed by the theorist derives from traditional mainstream theory. Thus Ashraf, Camerer and Loewenstein (2005) for example refer to Smith’s impartial spectator as a encouraging rational choice with respect to the individual’s long-term interest (a curb on short-sighted sentiment, which encourages irrational choice in the short run). While this interpretation introduces a richer conception of human nature than traditional rational economic man, it remains anchored by rational pursuit of self-interest as the reference point, to which modifications of specification may be added. This interpretation differs markedly from the conventional history of thought interpretation of the impartial spectator being, among other things, a moral reference point with whom the individual has sympathy, in the Smithian sense of the word, through imagination.

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 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).

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. This is particularly relevant to the effect on expectations, and thus requires a focus on cognition, learning and social norms.

Policy-making 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 turmoil of the financial crisis, and communication is required across different frames of reference. New institutional arrangements have in fact arisen in the UK from the evident need for cooperation across different functions (particularly monetary policy and bank regulation). 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. This tool of monetary policy has been extended now to ‘forward guidance’ in an effort to embed expectations of a particular monetary policy stance. 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 make 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.

The Market Player’s Frame

We have already encountered a theoretical approach, new behavioural economics, which takes seriously the consequence of framing in financial markets, but does not explore the framing itself. Here we will explore a variety of frames, and the contributions of other disciplines to our understanding of them.

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, i.e. 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 quantitative models 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 (e.g. 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' (i.e. 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 ('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 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 in the late 1990s. (This crisis, just as the banking crisis which started in 2007, occurred because framing risk as historical variance proved inadequate when there were structural shifts in markets, i.e. the markets were non-ergodic.) Performativity is also evident in monetary policy-making, where inflation forecasts are contingent on market expectations about inflation and about the policy rate.

A somewhat different way of framing market processes, and the frames employed in these processes, has emerged from the economic rhetoric literature, which analyses them in terms of ‘conversation’ (McCloskey, 2007). McCloskey more generally 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. New frames are adopted as a result of successful persuasion.

The Market User’s Frame

The term ‘financial markets’ calls to mind the big players: financial institutions and governments, and the specialists who act on behalf of small businesses and households. (Increasingly big businesses have their own treasury departments, which simultaneously

borrow and lend.) For them the activity of financial markets is a real social experience, and this is what sociologists study. But for the smaller users of financial markets, there is a different type of real experience which frames their knowledge of these markets. This is the experience of investing, employing, producing, consuming, working, or not. The availability of finance, or not, and its cost, and the realising of capital gains or losses, are potential enablers of spending or constraints on spending. The resulting framing differs from abstract theoretical framing and the framing of market players, yet is confronted with these other framings in the behaviour of remote financial markets, or large impersonal financial institutions, and in the pronouncements of central bankers. We can see here reflexivity (in that central bankers in turn take on board the framing at this level (as for example in the reports to the Bank of England by regional Agents on local economic conditions)). But there is also performativity. Media headlines about changing financial conditions formulated within one frame (e.g. 'the central bank raises its interest rate') may change household and business borrowing plans even though banks do not pass on the increase for one reason or another.

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 approach which best illuminates this framing is 'old behavioural economics', which has always drawn on other disciplines, notably psychology and sociology. 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 (e.g. 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.

Another approach to considering how economic actors frame their financial experience is provided by Minsky's (1982) financial instability hypothesis (which Earl incorporates into his behavioural approach; see also Dow and Earl, 1983). The emphasis here is on the changing and sometimes differing perception of risk among borrowers and lenders as the business cycle proceeds. The emphasis is on the psychological propensity, in the absence (in a non-ergodic world) of any basis for definitive risk calculation, for risk to be perceived to fall as a boom progresses, and to increase as a downturn progresses. There is reflexivity in that different sectors reinforce each others' expectations. Further, the role of market sentiment is integral to this approach, inevitably in the general absence of the conditions for complete quantitative risk assessment. This contrasts with the new behavioural economics approach, where sentiment is defined with reference to the rationality benchmark, as lack of rational justification (Baker and Wurgler, 2007).

The psychological element in Minsky's theory is most clear when it comes to turning points as a reversal in optimism or pessimism. Minsky explains how and why financial structure becomes more and more fragile as the boom progresses. It is vulnerable to a psychological shock, but it is impossible to predict when this shock will occur and what it will be; only the increasing vulnerability can be identified *ex ante*. The analysis is conducted without recourse to optimising behaviour, or equilibrium – indeed the theory concerns the inherent absence of equilibrium in market economies. It rests on an understanding of how changing conditions are framed and the financial behaviour which follows. While the theory generates general statements, each cycle requires detailed analysis given the inevitability of the particularity of whatever sparks off turnarounds.

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, has enriched the theoretical account.

And it has 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. It does 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, for example, old behavioural economics has observed the use of routines as a guide to behaviour, which encouraged the development of the framing concept of satisficing. New behavioural economics, on the other hand, employing a top-down approach, understands satisficing in terms of rational choice constrained by limited information.

Different disciplines employ different general frames, which can shed new light on each other's analysis, including the analysis of framing itself. Input from psychology and sociology for example 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 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.

The overall conclusion then is that, if theory is to reflect its subject matter, it should be formulated to reflect the framings in society. For economists to understand these framings better, other disciplines have much to offer, since each offers a different way of framing this framing in society. (There is therefore no one correct account of framing.) But the necessary first step is to acknowledge the role of framing, a reflexive application of the open-systems approach to knowledge. Only then can we learn most effectively from each other's disciplines.

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