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30 The methodology of finance

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The methodology of finance is crucial to the field. The way in which financial markets and behaviour are analysed depends on the methodological approach taken to building knowledge. This methodological approach includes both the methods of enquiry and the principles by which some theories are judged to be better than others. But in finance there is more reflexivity than normal, in that finance theory and modelling directly inform and guide actual market behaviour. Therefore the methodology of finance theory carries over into the methodology of practice. For example, we have seen in the financial crisis that broke in 2007 that the methodology of finance, particularly the reliance on quantitative models, was a major contributor to the situation, as well as colouring the way in which the crisis was then analysed.

Ultimately the methodology of finance is determined by the way in which the real practice of finance is understood, and thus framed. This framing then determines the form of the analysis and the way in which practice itself is organized. It is the purpose of what follows to explain what this involves. We start with the mainstream methodology of finance, and then consider alternative methodologies.

Methodological approach stems from the way in which real processes are understood. The ontology that underpins any methodological approach is conditioned, not just by simple experience, but also by 'deep background' (Searle, 1995) as well as by the more obvious influences of education and institutional environment emphasized by Kuhn (1962). Reality and 'facts' are thus understood in a particular way, even before consideration is given to explicit methodological principles by which the search for knowledge is guided. We therefore start each methodological account with the way in which finance is framed.

MAINSTREAM FINANCE

The mainstream approach understands financial markets as a close approximation to the perfectly competitive markets of mainstream microeconomic theory, given the large number of suppliers, the availability of specialist expertise, the free availability of large amounts of detailed information,

relatively free entry, and thus a competitive environment. Such markets are associated with efficiency in terms of producing a socially optimal outcome in terms of price and quantity. With this as the benchmark, we will see that anomalous results are explained by some impediment to the proper functioning of financial markets, the outcome being socially suboptimal. These market imperfections include regulation, which inhibits freedom of entry, asymmetric information, transactions costs and particular incentive arrangements.

Within this market framing, the price mechanism is central. Asset pricing is determined by specialist analysts who study the value of the underlying assets with reference to risk of future price variation, including risk of default. Where assets are structured products, the estimation of risk is highly complex. But the benchmark for pricing is 'fundamentals' (real economic conditions), which determine equilibrium values that are regarded as 'true' values. The estimation of risk is also treated as objective, such that a 'true' estimate of risk is established by the market. Deviations of price from equilibrium provide a profit opportunity for arbitrageurs, who act to eliminate those deviations. Market prices are thus equilibrium prices.

The methodology employed to analyse these markets is deductivist with respect to the rationality axioms. Market participants are understood to be rational in the strict sense of optimizing with respect to the profit goal on the basis of close-to-perfect information. Assuming rational behaviour, in this sense, results are deduced to predict the equilibrium price implied by a set of initial conditions. While these results can be derived by pure theory, financial markets are unusual in yielding a massive amount of pricing data, which allows for quantitative prediction, as well as *ex post* testing of theory. The methodology conforms therefore to logical positivism (Caldwell, 1982). As a result, highly sophisticated quantitative models have been developed to take account of the complexity of modern financial products and the interrelations between markets for different products. These models have been developed further by market participants themselves as a core tool for predicting future price developments as initial conditions change. The most famous of these is the Black-Scholes model, which received academic recognition with the Nobel Prize, but also was the basis for the market success of the US hedge fund Long-Term Capital Management in the 1990s. (But then LTCM collapsed because the model could not handle the structural changes in asset prices following the crises in South-East Asia and Russia.)

This methodological approach determines the type of theory that follows, the core theory being the efficient markets hypothesis (Fama, 1970). This theory posits that financial markets are 'informationally efficient'; prices

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reflect all available information, such that there are no persistent (risk-adjusted) profit opportunities; arbitrage between financial assets (as perfect substitutes) drives all asset prices to their equilibrium level (taking account of probabilistic risk and return). Movement in asset prices therefore either reflects changing fundamentals, changing information on fundamentals, or 'white noise' (the latter implying that asset prices follow a 'random walk'). Subsidiary theories include the capital asset pricing model, which provides the detailed modelling basis for valuing assets or portfolios in terms of risk assessment. Another is the Modigliani-Miller theorem, which states that the capital structure of firms is irrelevant (in the absence of market imperfections) since sources of finance are perfect substitutes (see, further, Glickman 1997–98). Indeed, Davidson (2002, Chapter 3) has identified the gross substitution axiom as one of the basic axioms of mainstream theory.

Overall, this theoretical structure provides justification for liberalizing financial markets in order to allow them to generate the most efficient, and socially optimal, outcome in the form of an array of prices. There have been challenges over the years to the efficient markets hypothesis in particular (emphasizing some market imperfection or another), but it has come under increasing scrutiny in the light of the crisis from 2007 as concerns emerged that liberalization had gone too far. Some of these challenges have been based on contrary empirical evidence, encouraging new approaches to finance within the mainstream. Challenges from outside the mainstream are based on a more broadly based difference of view as to how financial markets work (referring to the level of real forces rather than just the empirical level). We consider these alternative approaches in the next section.

ALTERNATIVE METHODOLOGIES

Mainstream Framing with Modifications Drawn from Evidence

Within the mainstream there are two strands of theory that start from empirical challenges to traditional finance theory. This reflects well the mainstream logical positivist methodology, whereby theoretical statements should be confronted with data, and theory then adapted accordingly. Both approaches aim to build up an alternative deductivist theoretical structure that more fully accords with evidence.

The older strand is the New Keynesian approach, which draws on evidence that challenges the Modigliani-Miller theorem. It is argued that small and medium-sized firms do not have the same access to capital markets as large firms, and are therefore more dependent on bank finance. The key is different information sets held by different parties (Bernanke,

1993). It is further argued that asymmetric information prevents banks from identifying the true risk posed by borrowers, so they use rules of thumb for pricing credit in a way that requires rationing when market rates are rising. The asymmetric information argument has been applied most recently to financial markets more generally, focusing on the difficulties experienced in pricing structured financial products (see, for example, Calomiris, 2008). Asymmetric information is treated as a market imperfection whose removal would prevent further crises; the policy implication is to ensure more market transparency.

The other stream, new behavioural finance, derives from empirical evidence with respect to individual behaviour derived from experimental economics; this evidence seems to run counter to the axioms of rational behaviour (see Camerer et al., 2004, for a survey). The analysis of the reasons for this seemingly irrational behaviour draws on psychology, referring to cognitive issues (how choices are framed) and to preferences (e.g., as to risk). However, behaviour continues to be defined as either rational or irrational, and the goal continues to be to build a deductivist model (albeit with modified axioms) (see, for example, Kahneman, 2003, p. 1469). Again the methodology is consistent with mainstream finance, but with more of a focus on what are understood to be market imperfections (irrational behaviour), with an empirical justification.

Heterodox Framing

There is another range of theoretical analyses of finance that adopt a quite different methodological approach. All are realist in the sense of starting from a particular understanding of economic processes as being grounded in institutions and conventions ('old' institutionalists and 'old' behavioural economists respectively) that have evolved in order to allow society to deal with uncertainty (Post Keynesian economics). Since social systems are understood to be open, such that behaviour and structures evolve in a non-deterministic way, the future is uncertain and thus cannot be captured in probabilistic measures. There is therefore no true price based on a true measure of risk. Finally markets are understood to be unstable, given the inability of the efficient equilibrating forces identified by mainstream theory to deal with unanticipated structural change and other unexpected developments.

The methodological approach is inductivist in the sense of stemming from an understanding of the real social system, rather than being based on axioms (like the rationality axioms of mainstream finance) that are taken to be true. But it is not pure induction; it is rather what critical realists call

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'retroduction', which seeks to move from detailed observation to identifying underlying causal mechanisms (Lawson, 1997, p. 24). It is accepted that our understanding of reality involves perspective, or theory. But the grounding in reality is regarded as crucial. Theories are developed on a provisional basis for application to particular contexts, with the understanding that theory may require revision for different contexts.

Financial markets are understood as competitive and sophisticated, yielding unusual volumes of information. Nevertheless, the pervasive presence of uncertainty requires that pricing be based on available information, but even more on conventional interpretations of that information, conventional expectations, and conventional practices that have evolved within particular institutions. So heterodox finance theory emphasizes analysis of these conventions and institutions, including the particular convention, drawn from mainstream theory, of basing decisions on quantitative models. Other disciplines provide input, notably psychology to explain motivations for behaviour that may be subconscious (Tuckett, 2009) to explain behaviour, avoiding the mainstream dichotomizing of rationality and irrationality. Similarly, recourse is made to sociology to explain the social setting of markets (Preda, 2007). The pluralism reflected in interdisciplinary analysis also appears in terms of the range of methods employed, with mathematical formalism only one of those methods.

Uncertainty is seen, not only as justifying this open-system methodological approach, as well as a determinant of the development of institutions and conventions, but is also seen as a determinant of portfolio behaviour. A central plank of Post Keynesian finance theory is the theory of liquidity preference, whereby increased uncertainty about asset valuation encourages a preference for a more liquid portfolio (Bibow, 2009). This has implications for the behaviour of asset markets, providing part of the explanation for financial crises. Minsky's (1982) financial instability hypothesis analyses the consequences of increasing leverage as conventional asset valuations rise in an upturn; this reflects falling liquidity preference in all sectors, including the banks (encouraging more lending). The reverse occurs in the downturn, which has been spurred on by cash-flow problems as highly leveraged firms face difficulties in meeting commitments when markets turn around. A Minskyan analysis of financial crisis that takes instability as the norm thus differs fundamentally from mainstream explanations that take stable equilibrium as the norm. Policy differences follow. While the mainstream methodology generates policy recommendations for removing market imperfections, a Minskyan methodology generates policy recommendations for mechanisms to stabilize financial market activity.

CONCLUSION

We have seen that the framing of financial markets requires a particular methodological approach, which in turn requires that theory takes a particular form, and policy be approached in a particular way. Even when mainstream finance theory has been challenged by various types of evidence, and new theories have emerged, this methodology acts as a powerful constraint. Theory must classify any results that deviate from a socially optimal competitive equilibrium as the outcome of some market imperfection, and policy options are accordingly limited to addressing these imperfections. By framing financial activity and institutions rather in terms of uncertainty, non-mainstream finance theory has developed along very different lines, dealing with such matters as liquidity preference and financial instability that are heavily circumscribed in mainstream theory. This open-systems approach allows for a fuller input from other disciplines, and adaptation of theory to address particular institutional contexts, as well as a different type of input from policy-makers.

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