Book Reviews

Adventures in Financeland

An Engine, Not a Camera: How Financial Models Shape Markets by Donald MacKenzie. Cambridge, MA, MIT Press, 2006, ISBN 0262134608. Pages:

377. £25.95 (hbk).
Out of the Pits: Traders and Technology from Chicago to London by Caitlin Zaloom. Chicago, IL, University of Chicago Press, 2006. ISBN 0226978133. Pages: 224. £18.50 (hbk).

Do Economists Make Markets? On the Performativity of Economics by Donald MacKenzie, Fabian Muniesa and Lucia Siu. Princeton, NJ, Princeton University Press, 2007. ISBN 0691130163. Pages: 373. £35.00 (hbk)

The would-be sorcerer alone has faith in the efficacy of pure knowledge; rational people know that things act of themselves or not at all. (Wolfe, 2000: 17)

"Action is not done under the full control of consciousness; action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled". (Latour, 2005: 44)

'We live in financial times'. Such goes the new and rather clever tag-line supporting the redesign of the business newspaper Financial Times (FT) in April 2007. Clever because it makes the FT seem so perfectly attuned to the times. During the first half of 2007 discussions of Private Equity extended to the front pages of mainstream newspapers and even our television screens. Then in late July the 'Credit Squeeze' started to unfold, turning 2007 into the financial world's 'most traumatic year since the 1987 crash'.1 On 14 September 2007 the UK bank Northern Rock went to the Bank of England for emergency funding, causing the first bank run in 140 years. Suddenly rather arcane terms like CDO (Collateralised Debt Obligation), CDS (Credit Default Swap) and CFD (Contract for Difference) were explained to us at great length in the popular media.2 We live in financial times indeed!

The three books I review here help us better to understand how the financial world ticks. They all pay attention to the empirical intricacies of agency and borrow to a large extent their analytical perspectives from actor-network theory (ANT). They also interrelate at various points, most signifi cantly in addressing the relation between social theories and (financial) markets, and thus help explain and contextualize each other. Not surprising then that Donald MacKenzie (2007) ended up writing a review of Caitlin Zaloom's book. He praised her 'superb book' for fi lling an important gap: 'Despite the role it has played in shaping today's world, there are few observational studies of financial trading to complement the thousands of econometric studies of price fluctuations' (p. 22).

Out of the Pits

Out of the Pits is a double-site ethnography. Zaloom worked as a clerk at CBOT (Chicago Board of Trade) and later as a trader in London dealing in European futures products. In Chicago she witnessed the great debate on whether to go digital (screen based trading) or retain the open-outcry trading system in the 'pits'. In London she experienced the aftermath of the move to an electronic dealing room. Experiences of the trading fl oor and the dealing room were supplemented with meetings, archival research and interviews. Chapters 1, 2 and 4 take us from the beginnings of CBOT in 1848 and its first purpose-designed building (1885), through to the exchange's
1930 (still existing) signature building and to 'pit-life' in the late 20th century. The third chapter sketches the recent history of London's financial markets. The last three chapters (called 'Economic Men', 'The Discipline of the Speculator' and 'Ambiguous Numbers', respectively) give us themed insights into the life of traders in both locations: what drives them, the selves that are constructed in the act of trading, the 'maverick aesthetics' and 'grotesqueries of the dealing room'. Zaloom paints a picture
of traders 'who operate at the heart of modern capitalist economies [and] take risks with money and self every day' (p. 95) but are instructed 'not to think' so that they remain flexible and ready to react immediately to changes in the market, a market that one can experience directly as one becomes 'a part of this living thing, intimately connected to it' (p. 105). The adrenaline rush of trading and the feeling of 'being in the zone' come with the gut-level immediacy of being directly inside and surrounded by the market. Traders create stories around the shifting directions of numbers that economists consider a 'random walk'. Yet, they also strip money of any social connotations, 'ticks' being the currency of the market: 'Distinguishing money from ticks allows traders to separate the consequences of good and bad trades from the necessities of everyday life outside the market' (p. 131). The dealing room is a place where space and time as we understand them have been suspended, and there is only the rush to win a monetary gain. The picture of homo oeconomicus that emerges is ultimately a rather garish one: 'Taking advantage of chaos in the economy and of other people's losses to make a profit is the stock-intrade
of speculation. Economic man delights in the carnage' (p. 117).3

Zaloom also explores at length the new informational matrix that emerged following the transition from pit to electronic trading.4 This transition was
driven by the search for the 'perfect market', anonymous and atomistic, fitting snugly within narratives of progressive rationalization. These position
technology as a force of efficiency that facilitates calculation based solely on prices and other financial abstractions. Yet, Zaloom shows time and again (in different periods and different places) how social ties, theories
and emo tions are always an intrinsic part of the market. It is worth quoting her at some length on this matter:

During the construction of the 1930 building, as well as in the transition to electronic trading, managers and transnational trading fi rms worked to extricate the market from the web of personal relationships. Although social
ties create the basis among traders for understanding and analyzing the market, the effort to create spaces, technologies, individuals, and representations
that express pure market rea son is a key part of the rationalization process. Whenever market designers move to rationalize the marketplace, traders work to resituate rationalized information within their distinctive

ways of understanding, interpreting, and calculating … The ‘rational, purposeful pursuit of interests’ that marks the autonomous economic sphere is not a natural tendency, but a project that requires strategic construction,
constant vigilance, mainte nance, and repair. (pp.162–164)

Zaloom argues persuasively that financial markets are not an imperfectly insulated area of economic rationality, but a sphere in which the economic and the social interweave seamlessly. The processes that produce abstract information in financial markets are not themselves abstract: ‘Managers and designers integrate people, technologies, places, and aesthetics into a zone of autonomous economic action’ (p. 177). In developing her argument she borrows from the ANT vocabulary, starting in chapter 1 where she references authors such as Michel Callon, Bruno Latour and John Law. She talks about ‘socio-technical arrangements’, about the need to un derstand
how machines and humans are tied together into a fi nancial system, and the need to focus on the relationship between technologies and practices that are linked through ‘practical experiments in rationalization’

(p. 171). Still the book is very much (ANT) theory-light, and perhaps justifiably so. For a more theory-orientated book we now turn to Donald MacKenzie.

An Engine, Not a Camera

MacKenzie’s background in science and technology studies makes him familiar with the arguments and concepts put forward by ANT proponents.

His earlier research on how scientists stabilize and produce the world they set out to discover particularly honed his interest in the theoretical concept
that underpins this book: performativity (in the strongest sense).5 He traces this rather elegant concept back to J. L.Austin’s speech act theory via Michel Callon (2005). The title of the book, with a little nod to Milton
Friedman, expresses MacKenzie’s key assertion: ‘Financial economics … did more than analyze markets; it altered them. It was an ‘engine’ … an active force transforming its environment, not a camera pas sively recording it’

(p. 12). In other words, it was both cognitive and creative. As various contributors
to MacKenzie’s edited volume elaborate on, and problematize the concept of performativity, I will postpone a critical discussion until the final pages of this review. To start us off, the following digest of the key
issues suffi ces:

Has the practical use of fi nance theory … altered market processes toward greater conformity to theory? If the answer to that question is at least partially in the affirmative, we have iden tified a process shaping the financial markets—and via those markets perhaps even the wider economies and societies of high modernity—that has not received anything like sufficient
attention. If, on the other hand, the practical use of fi nance theory sometimes undermines the market conditions, processes, and patterns of prices that are posited by the theory we may have found a source of danger that it is easy to ignore or to underestimate if ‘reality’ is conceived of as
existing entirely independently of its theoretical depiction. (p. 24)

Whilst theoretically sophisticated, An Engine, Not a Camera also offers us another ripping Chicago yarn, tracing the intertwining fates of the Chicago Board Options Exchange (CBOE) and the Black-Scholes-Merton option pricing model. The book takes the form of a series of historical narratives on the development of finance theory and on its interaction with the modern fi nancial markets, based to a signifi cant extent on a set of 60 oral-history interviews with finance theorists and senior market participants. The tone is set in the ominous opening sentence: 'Chicago, late evening, October 19, 1987 … '. Crises, meltdowns and crashes very much frame the theoretical explorations and propel the narrative along.6 We even encounter the occasional hero or two along the way. Admittedly, after the cracking start the reader is in danger of becoming rather bogged down in the first couple of chapters where MacKenzie provides a detailed history of modern fi nance theory. Whilst he ably demonstrates the ties between fi nancial theories (the Capital Asset Pricing Model; the effi cient-market hypothesis, random-walk models of stock-price changes) and their application, one cannot shake off the feeling that his proposed hypothesis that these models might7 (!) have had an impact on the structure and practice of financial markets is perhaps a little tepid.

Much stronger (and riveting) is the argument developed in chapters 5, 6, and 7 which explore the unfolding performativity of option pricing theory in financial markets. Here the details are less distracting and helpfully provide additional circumstantial evidence to an earlier joint paper on the performativity of the Black-Scholes-Merton model (MacKenzie and Millo, 2003). MacKenzie sketches three distinct phases: from 1973 until 1976 when there were substantial differences between observed option prices and values imputed by the model; from 1976 until the summer of 1987 during which the model was an excellent fit to observed prices; and from autumn 1987 to the present when the model's fit again has been poor (with a persisting volatility skew or 'smile'). What is particularly interesting is that at first the correspondence between the Black-Scholes-Merton model and patterns of CBOE prices was fairly poor. The model certainly did not describe an already existing world 'out-there'. However, its use in arbitrage and the effects of that arbitrage reduced discrepancies be tween empirical prices and the model, especially in the matter of the fl at-line relationship between implied volatility and strike price: 'The "practice" that the BSM model sustained helped to create a reality in which the model was indeed "substantially confirmed"' (p. 166). Thus a performative loop between theory and reality was established. Gradually the financial markets changed in such a way that market prices moved towards the postulates of the model. It came to shape the very way participants thought and talked about options, in particular via the notion of 'implied volatility'. But it was not all just down to talk; they used Black's sheets8 as a material means of calculation, thus connecting the apparently abstract mathematics of the model to the physical action on exchange trading floors. Yet, as MacKenzie points out, we cannot establish a simple linear causal relationship between model and reality, ' … the year of its publication also saw the opening in Chicago of the first modern options exchange, and the development of organized options trading would have had an effect on patterns of prices quite independent of the model' (p. 256). The performativity of classic option pricing theory was therefore certainly not a matter of simply discovering the correct way to price options. For MacKenzie it was a contested, historically contingent outcome, ended by a historical event, the 1987 crash, which introduced a seemingly permanent volatility skew. The assumption of 'mild' randomness of the model may have even helped to generate the 'wild' randomness seen in 1987 (and later in 1998 with the collapse of the super hedge fund LTCM, discussed in detail in chapter 8). The adoption of Mandelbrot's wildly random infinite-variance Lévy distributions post-1987 can be seen as counterperformative move: 'In Chicago, where a Black-Scholes world was performed, a radically different world is now institutionalized in risk-management techniques … The goal is not performativity but counterperformativity: to assume "wild" randomness in order to lessen the chance of its man ifesting itself' (p. 210).

Throughout the book MacKenzie takes great care to stress that we are not just dealing here with beliefs and world views. The Black-Scholes-Merton model could not have been performed in the markets had it remained simply a conceptualization in economists' heads: 'While beliefs about markets are clearly important … a form of incorporation that is in some senses deeper is incorporation into algorithms, procedures, routines, and material devices' (p. 19). An agencement in other, specifi cally ANT, words. As Callon (2007: 320) elaborates:

What MacKenzie describes with surgical precision is the gradual actualization of the world of the [BSM] for mula … through the intense work of articulating, experimenting, and observing that has been required to produce the gradual, mutual adjustment of sociotechnical agencements and formulas … what makes this process possible is the performative dimension of the statements and the trials they allow.

On the Performativity of Economics (or Performing Performativity)

How can a discourse be outside the reality that it describes and simultaneously participate in the construction of that reality as an object by act ing on it? To this paradoxical question the concept of performativity provides a convincing and general answer. (Callon, 2007: 316)

It is true that reality is the criterion for the correctness of thought. But reality is not, it becomes—and to become the participation of thought is required. (Lukács, 1922: 204)

The aim of the collected volume by MacKenzie, Muniesa and Siu is 'to put the notion of 'the performativity of economics' to the test of bringing it to bear on various aspects of economic life and economic science' (p. 7). As such these essays allow us to revisit and critically examine the concept of performativity and to elaborate on the importance of agencements.9 They also provide further examples and contexts for claims made in the other two books. For example, Garcia-Parpet's study of the introduction of a computerized market for strawberries at a village in the Loire valley reinforces Zaloom's and MacKenzie's findings that markets cannot simply be seen as the spontaneous appearance of a mecha nism for liberating economic energies which came into being because of the rationality and efficiency of its procedures: 'The prac tices which constitute the market are not market practices' (p. 37). Guala argues in his chapter that the invisible hand so beloved of economists, 'requires a lot of fine-tuning and tinkering in order reliably and consistently to transform individual greed into social benefits' (p. 150).

As the title of the book indicates, most of the chapters engage in a multitude of ways with the concept of 'performativity': challenging, elaborating, and mut(il)ating. Several authors actually suggest to do away with the concept altogether (Didier, Mirowski and Nik-Nah)10 or at least use a different term (e.g. 'expression') that better captures the actual processes at work, claiming 'performativity' overplays linguistic and textual practices and thus leaves material practices in the background (Lépinay). The most substantial contribution to the book—both in terms of length and of engagement with the concept of performativity—comes from Michel Callon and in the rest of this review I will borrow heavily from his chapter.
If the issue is 'not (only) about economics being "right" or "wrong" but (also, and perhaps more important) about it being "able" or "unable" to transform the world' (p. 2) as the editors suggest, then this locates the book fi rmly within the pragmatist tradition according to Callon. Instead of regarding statements as true or false, pragmatism conceptualizes them as successful or failed. For Callon, ANT adds to the pragmatist tradition a distinctive focus on the agencements11 that generate success and failure:

A socio-techni cal agencement includes the statement(s) pointing to it, and it is because the former includes the latter that the agencement acts in line with the statement, just as the operating instructions are part of the device and participate in making it work. (p. 320)

What we often consider as a struggle between statements or theories is for Callon a struggle between sociotechnical agencements: 'It is not the environment that decides and selects the state ments that will survive; it is the statements that determine the environ ments required for their survival'

(p. 335). Guala, in his chapter, shows how science provides an accurate description of at best only niches of the real world. These niches are actually artificially created to give the theory its 'best shot', by eliminating all the distur bances and the imperfections that normally impede its application to 'naturally occurring' circumstances. If economic rationality is a fragile property that must be carefully preserved by creating a hospitable environment, then the same goes for the concept of performativity itself. It is therefore not surprising that virtually all the discussions of performativity in MacKenzie's work focus on the 'surgical precision' (cf. Callon, 2007: 320) of the Black-Scholes-Merton case, which indeed offers a carefully crafted niche. What matters is not so much the 'truth' or possible theoretical foundations of MacKenzie's assertions, but rather their transformative capacity in terms of research and theoretical practices. Discussions of performativity in journals, books and at conferences draw in actors and resources. For example, when a reviewer in the Journal of Economics (Schlag, 2007: 90) suggests that An Engine, Not a Camera 'is certainly of interest to (younger) financial economists who would like to get an idea of the interaction between academic research and the developments of financial markets' then that is an indication of a potentially transformative action. Critique is useful in propelling this transformative capacity along (with the concept of performativity mutating in the process—indeed Callon prefers to talks about 'performation' in his chapter), but also somewhat besides the (ANT) point if it just aims to prove there is no solid foundation to 'performativity' and that after taking the concept carefully apart there seems to be not much there. As Culler (1981) argued in the context of semiotics, for a concept to do its work we often have to take for granted and pass over in silence numerous complicated conventions. Agency always overflows (Callon, 2005; Latour, 2005), even the agency of the performativity agencement: 'The history of science is nothing but the long and interminable series of untimely overflowings, of sociotechnical agencements that have been caught out, unable to disci pline and frame the entities that they assemble (Callon, 2007: 323).

For Callon, 'performativity is relevant only if it is further refined by the semiotic turn and the ANT turn' (p. 328). This pragmatic-cum-semiotic turn is exemplified in the work of philosopher J. L. Austin who criticized the idea that the function of language is essentially representative, and who introduced the famous distinction between constative utterances (e.g. 'the structure of DNA is a double helix') and performative utterances (e.g. 'I baptize you'). A performative utterance is a spe cific kind of statement or expression that establishes its referent through the very act of uttering; it causes the reality it describes to exist (e.g. being baptized is the consequence of an act of language). Performative utterances belong to a class of speech acts which get something done rather than to the discourse of description. We can therefore speak of a constative utterance, one which aims to describe the world, as either true or false; but it would not make sense to speak of a performative statement as either correctly or incorrectly 'reflecting' reality. Performative statements are not simply a matter of linguistics MacKenzie argues in his contribution to the edited volume: 'we must also always inquire into the social, cultural, and political nature of the "conditions of felicity" of the process' (p. 78). Or, as Eagleton put it rather prosaically, 'I cannot baptize a badger, and will probably have made things worse if I am not a clergyman anyway' (Eagleton, 1996: 103). In attempting to make the distinction more precise, in the end Austin came to admit that even statements of fact, or 'constative' language, are acts of informing or affirming, and to communicate information is as much a 'performance' as baptizing a child. So much for solid foundations …. 12

Perhaps a final point to elaborate on is the distinction between performativity and Merton's notion of self-fulfilling prophecy. A current example suffices to illustrate the operation of the latter. The rumour spreads in mid-September 2007 that the Northern Rock is 'in trouble'. As a consequence customers rush to withdraw their deposits before everyone else does to avoid losing their money, in the process offering some wonderful television pictures of massive queues outside the bank's offices. Soon, the rumour turns into reality: the bank really has become insolvent, because people have become convinced that it is. Ferraro et al. (2005) are recent advocates of the power of self- fulfi lling prophecies. They suggest that theories can become true to the extent that people, acting on their ideas and underlying assumptions, actually make

them come true. To demonstrate this, they suggest, one would need to show that implementation of the practices implied or recommended by the theory 'had predictable, observable effects that caused the theory to correspond more closely to observed behavior … and that this expected behavior became more common as the theory itself gained acceptance, not before' (p. 13). Whilst they stress the importance of introducing practices,
routines and organizational arrangements that create conditions favouring the predictions made in the theory, they still fail to grasp the signifi cance
of all the materialities comprising the sociotechnical agencements which a particular theory's performativity has to unfold into. It is not the
theory itself that can cause a sociotechnical agencement to exist. There are always other interests and forces involved, something which Zaloom and MacKenzie amply demonstrate in their books. Furthermore, economic models that are incorporated into such an agencement 'can have effects even if those who use them are skeptical of the model's virtues, unaware of its details, or even ignorant of its very existence' (MacKenzie, 2006: 19).
Callon and MacKenzie also point out that performativity always leaves open the possibility of events that might refute, or even happen independently
of, what humans believe or think. In 1987 the Black-Scholes-Merton model was no longer able to absorb current events and behaviours, but its inability to withstand the 1987 events was not due to a simple lack of belief in the formula.

In conclusion, I wholeheartedly recommend these three books to readers with an interest in actor-network theory, economic sociology and/or good storytelling; and of course to those who have a desire to understand better the financial times we are living through.

Notes

1 FT editorial, 6 November 2007.

2 Perhaps it made people aware of the magnitude and multiplication of instruments
that lengthen the distance between financial instruments and actual underlying assets. In many cases these entities are simply circulating around
fi nancial markets and their value is determined by fi nancial market activities
whilst being rather tenuously related to any underlying referent (Knorr Cetina
and Preda, 2005). The equity derivatives market alone expanded 39% to $10,000bn dollar during the first half of 2007 according to data from the International
Swaps and Derivatives Association.

3 MacKenzie and Millo (2003: 116) provide an important corollary when they reflect on the workings of the Chicago derivatives exchanges: 'the very markets
in which homo oeconomicus appears to thrive cannot be created (if they require
the solution of col lective action problems, as in Chicago) by homines oeconomici.
Chicago practice … contradicts Chicago theory, orthodox economics as famously

pursued at the University of Chicago'. This 'alternation between calculative and non-calculative agencements' of traders is a bit like cross-dissolves in the movies, with altruism implying elements of calculation and vice versa, Callon (2007: 347) maintains: 'economic markets cannot exist without moral agencements or, conversely, any altruistic agencement is calculated'.

4 The withering of exchange floors seems to have taken on an air of inevitability since the introduction of electronic trading. It was reported in November 2007 that the NYSE is planning to shut two of the overflow rooms of its historic trading floor, shrinking it back to the size it was 40 years ago. Some even predict the eventual closure of the fl oor.

5 Whilst MacKenzie also introduces the weaker (and conceptually less interesting) versions of 'generic' and 'effective' performativity in the first chapter, they only play a minor part in the book and hence I will not elaborate on these.

6 Copious newspaper column inches have been devoted to the 1987 crash on its 20th birthday. Ominously, various commentators pointed out that then, like in 2007, recent financial innovations played a major role in turning a rocky patch into a full-blown crisis. The use of 'portfolio insurance', or computerized hedging strategies that were supposed to protect investors from downside losses, actually exacerbated the crash (a 22% drop in a single day) as sellers could not find any buyers, thus provoking an event with a probability of 10–160. Twenty years later the market experienced a new buyers' strike, this time of structured finance products like CDOs. As a little aside, Zaloom points out that the key argument in favour of preserving the pits at CBOT was that the open-outcry tradition was better suited to handle the human irrationalities that cause panics in the market. Even advocates of electronic dealing admitted that 'Nobody does it better in times of market stress' (p. 53). Indeed, CBOT's pits were the only markets to stay open on 19 October.

7 MacKenzie uses qualifications—hedging his bets as it were (excuse the pun)—throughout these chapters. For example: 'the popularity of indexing has made a prediction of the Capital Asset Pricing Model that troubled Sharpe less untrue … Tests of the efficient-market hypothesis by those who generally supported it led to the identification of "anomalies"… [which] gave rise to investment strategies to exploit them, and the pursuit of those strategies seems often to have reduced or eliminated the anomalies' (p.30, emphasis added).

8 These were computer generated sheets of theoretical prices for all the options

traded on US option exchanges. A 1976 example is reproduced in the book on page 161.

9 Many of the first drafts of the chapters were presented to a workshop held at the Ecole Nationale Supérieure des Mines de Paris which also yielded a companion volume to this book (cf. Muniesa et al., 2007).

10 Mirowski and Nik-Nah go a step further even and offer a cutting and entertaining critique of ANT, suggesting it is suffering from a 'present impasse'.

11 Callon prefers the French word agencement over 'socio-technical arrangement' (cf. Zaloom above), in order to stress the fact that agencies and arrangements are not separate (Callon, 2005). Hardie and MacKenzie (2007) in their recent study also retain the French agencement because they feel the word-play does not carry over into its usual English rendering as 'assemblage', 'which has somewhat too passive a connotation' (p. 3).

12 Interestingly, Callon is the only one of the contributors to the volume who actually acknowledges the fact Austin ultimately concluded that it was impossible to maintain the hypothesis of the existence of purely constative utterances.

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