Social Connectivities in Global Financial Markets

Donald MacKenzie

December, 2002

Author’s address:
School of Social and Political Studies
University of Edinburgh
Adam Ferguson Building
Edinburgh EH8 9LL
Scotland
D.MacKenzie@ed.ac.uk
Abstract

This paper discusses three notions of social connectivity – mutual susceptibility, imitation, and the hardening of social links by mobilization of non-bodily resources – and applies them to behaviour in the financial markets. A spectrum of market forms is examined, from local, face-to-face, “open outcry” markets to markets with anonymous, automated trading. It is argued that social connectivities can be found in markets of all kinds, and that these connectivities are economically consequential.

Financial markets span the world: they are at the heart of globalization; in certain senses, more centrally so than trade in physical objects.\(^1\) The connectivity of the financial markets means that events in one market can sometimes influence those in others in seconds. The attitude of global investors to a country’s bonds – and, specifically, the rating of those bonds by agencies such as Standard & Poors – are

\(^1\) As Turner (2001) points out, the objects in which production and trade are most highly globalized also tend to be those which become cheaper because their production is subject to continual increases in efficiency. Their economic significance, and the consequent coercive force of “global competition” in this sphere, is therefore less than commonly assumed. Trade intensity (sum of exports plus imports, divided by GDP) is 20% for Japan, 22% for the European Union, and 26% for the U.S., and there is an argument for Adair’s measure of trade intensity, in which the sum of exports plus imports is divided by two, and the above intensity figures are therefore halved (ibid., pp. 31-32).
critical matters. For “emerging” economies such as Indonesia, Argentina or Russia, they can, via their effect on economic circumstances and government budgets, become literally matters of life and death.

Because the consequences of financial connectivities are often experienced as an external coercive force, it is easy to imagine that those connectivities follow an impersonal and delocalized logic: the market’s “invisible hand” writ global. That this is partly true cannot be denied. The argument of this paper, however, will be that global financial connectivities have “local” aspects: “local” in the sense that they involve interaction between relatively limited numbers of people who are in some sense known to each other, or at least the effects of whose actions are known. I shall claim that these connectivities are social in nature, and that they are economically consequential: for example, they may affect prices.

My argument will proceed as follows. First, I shall examine a variety of senses in which a relationship can be claimed to be “social.” Second, I shall turn to the easiest context within which to demonstrate the local, social, nature of behaviour in financial markets: markets in which trading takes place face-to-face. Third, I examine markets in which trading takes place by telephone or by
electronic intermediation. The fourth section of the paper considers the case of markets where the identities of the partners to a trade are unknown, and argues that even in such markets economically consequential social connectivities may be present. The conclusion returns to the meanings of the “social.” An epilogue turns briefly to the question of method.

**On sociality**

That the concept of “social” has a plethora of meanings is obvious: the plethora supports an entire set of disciplines, sociology and the other social sciences. In this section, I shall present two reasonably standard meanings of the “social,” and then outline the critique of standard conceptions offered by actor-network theory.

One meaning of the social – recently elaborated in a most stimulating way by Barnes (1992; 2000) – is mutual susceptibility. We humans have a natural propensity to evaluate the behaviour of others, and ourselves to be influenced by the evaluation, actual or imagined, by others of our behaviour. Our very biological
make-up, specifically the anatomical structures of our faces,\(^2\) is finely tuned to express approval or the most potent forms of disapproval: contempt and disgust.

A whole literature on social interaction – at perhaps its most perceptive in the work of Erving Goffman (e.g. 1959; 1967) – has investigated the resultant contingencies, of significance to almost all\(^3\) humans, of the management of how we appear to others.

Mutual susceptibility is an obvious fact about humans, but it has profound consequences, because it is in tension with an increasingly dominant viewpoint in the social sciences: rational choice individualism. What should trouble the sociologist about rational choice individualism is neither rationality (if conceived with due empirical modesty, an excellent assumption) nor choice (we have rightly abandoned views of human beings as automata programmed by “society”); and it is sectarian to object in principle to the mathematical modeling that rational choice individualism facilitates. No: the problem is individualism, the frequent implicit

\(^2\) For a popular account of the role of the face in social life, see Bates and Cleese (2001).

\(^3\) In the tragic condition of autism, mutual susceptibility is impaired, apparently because of a difficulty in imagining how an interaction seems from the viewpoint of the other parties to it.
exclusion, from the model of what an agent is trying to maximize (from his or her utility function, in economic parlance) of both the well-being of others and others’ evaluations of the agent.

Here, arguably, lies the chief theoretical interest, to the sociologist, of the financial markets. If there is any part of high modernity in which individualism might hold sway, it is surely in these markets. They are widely seen as places of individual, calculative self-interest; that is how they are modeled by most economists; that is the self conception of many in them. You “have to be completely selfish,” said the first trader I interviewed, “and all that matters is your P & L” (profit and loss).4 The financial markets, then, are a kind of natural experiment in social life. If rational choice individualism fails here, it surely must fail everywhere.

---

4 In this first interview, I had not yet grasped the importance of the issues discussed here, and took this interviewee’s statement at its face value, pursuing it no further. This paper draws on a set of 60 interviews conducted by the author with traders and finance theorists between 1999 and 2002. The nature of the subject matter of this particular paper makes it inappropriate to identify the particular interviewees I am quoting.
A second meaning of the social – or perhaps better, a second aspect of the social, for it is closely linked to mutual susceptibility – is imitation. From almost the moment of birth, we humans imitate each other. That is how we learn many of our crucial competences, including our native tongues. That many skills are learned by imitation of an existing practitioner, rather than from verbal instructions, means that there is a tacit, local, embodied aspect to much knowledge (see, e.g., MacKenzie and Spinardi 1995). Imitation is apparent in a huge range of behaviour; it leaves its stamp on our very bodies, as the literature on eating disorders and obesity suggests.\(^5\) It influences our perception of the world around us. That others see reality in a particular way prompts us to see it that way too, and not simply because we may be seeking their approval. When I and others differ in our view of the way things are, a common experience is to discover that I am wrong! In consequence, we can imitate others, not just because we want them to think well of us, but because we think that they are likely to be right: see the

\(^5\) The imitation of others’ bodies can lead both to excessive desire to be thin and also to complacency about not being thin. The geographical distribution of obesity levels, for example within the U.S., is very uneven. One specialist notes that “Obesity may feed on itself [sic]. ... As you see more obese people around you, it becomes less stigmatised, more normalised. There’s a possible feedback loop that breaks down incentives to maintain a healthy weight” (Michael First, quoted in Griffith 2001).
discussion below of the Deutsch and Gerard experiment (Deutsch and Gerard 1955).

Imitation creates local structures of similar behaviour. In discussions of financial markets, such structures are often deemed to be irrational “herd behaviour,” but imitation is in general perfectly rational. It would, for example, be perverse not to learn the language spoken by those around one, and imitation is often a rational response to ignorance or to lack of certainty. André Orléan presents a nice analogy (Orléan 1998). Imagine you are in a room with one other person when a fire breaks out. The room has two exits: one leads to safety; the other to a dead-end and death. You do not know which is which. With no time to communicate, the best strategy is to follow the other person. If s/he knows which exit is safe, you have saved yourself; if not, you are no worse off than if you had taken an individual, random choice. It is herd behaviour – at least with a herd of size two – but entirely rational. Fans of the television game show, “Who wants to be a millionaire?” will note the parallel between Orléan’s room and the option of

---

6 There are a number of formal models incorporating this possibility: see, e.g., Scharfstein and Stein (1990).
the contestant, who has to choose the right answer amongst four possibilities, to “ask the audience”: in other words, to poll the studio audience. “Ask the audience” is a valuable resource – participants can use it only once – because the answers of those who do not know will tend to distribute randomly, so the most popular answer is probably right. Furthermore, both Orléan’s analogy and “ask the audience” contain a key simplification with respect to most real-world situations of sociological interest (in the financial markets, for example) in that the correct answer is given independently of actors’ choices. In much of social life, actors’ selections of an “answer” influence its correctness. To the extent that the choice of an answer increases correctness (which is not always the case, as we shall see), local structures of imitation are self-reinforcing.

Those versed in actor-network theory will by now be feeling dissatisfied with my largely standard sociological notions of mutual susceptibility and of imitation. In respect to this discontent, a key, early actor-network text is Strum
and Latour (1987), which points out the crucial difference between baboon and human societies. Baboons are social animals: they are mutually susceptible, and they imitate each other (see, e.g. Strum 1975). Yet baboon societies are what Strum and Latour call “soft societies”: local, limited in time and space essentially to the span of face-to-face interaction. We humans, in contrast, can construct “hard societies” that transcend the local, that have histories and geographies.

How can humans do it, while baboons cannot? It is tempting to say it is because we are brainier than baboons, but this, in itself, is misleading. There is indeed a relationship between neocortex ratio and mean size of social group in non-human primates. If that log linear relationship is extrapolated to the neocortex ratio of Homo sapiens sapiens, however, it predicts a mean group size of just under 150 (Dunbar 1993). There is, indeed, intriguing but not conclusive evidence that human groups dependent upon direct interpersonal interaction seldom much exceed that figure (Dunbar 1993; Gladwell 2001). Modern humans, however, plainly are able to construct “societies” many orders of magnitude larger.

Of course, actor-network theory and its intellectual descendants have developed considerably since this early text (see e.g. Latour 1999; Law and Hassard 1999; Law 2002), but no later work contains
than 150.

Intelligence in itself is thus not the entire explanation of the different society-building capacities of humans and baboons. Another aspect is what Strum and Latour call “extrasomatic resources.” One is language. Speech is a vastly more efficient way of negotiating and maintaining social links than the dominant mechanism in non-human primates, grooming. An animal can groom only one other at a time, and it is hard to do anything else while grooming (Dunbar 1993). One can speak, however, to several others at the same time and can do so while engaging in a wide range of other activities (mobile telephones add to this latter capacity, and anecdotal evidence suggests that much text messaging between friends is not “informational” but a – highly efficient – equivalent of grooming!)

The other crucial extrasomatic resource, and the chief focus of Strum and Latour’s attention, is technologies. Consider writing (a technology that lends durability and mobility to language: see Goody 1977); other means of communication at a distance; clothing and personal decoration (a way of such a clear, simple parable about the relations of “society” and “technology.”
indicating status that can “cue” one how to treat someone who is not personally
known: see Dunbar 1993); weapons; walls; prisons; and so on. Without
technologies, the constraints of the local are hard to transcend, even for clever,
linguistically-endowed primates such as ourselves. Hence what I take to be the
two central theses of actor-network theory. First, the “social” and the “technical”
are not separate spheres, but one and the same. Sometimes humans do act purely
socially, without the mediation of artefacts (sex without prophylactics against
pregnancy or disease is perhaps the most obvious example). Most of the time,
however, the “technical” is part of the constitution of the “social.” Second, a
sociology that ignores technology (that is, most of sociology, even at the start of the
twenty-first century) is therefore a baboon theory: it treats human beings, and
human sociality, as if we were baboons. Although the efflorescence of the
sociology of the body is a welcome development, it should not blind us to the key
role in the construction of “society” of non-bodily resources.
In the pits

Let me begin, nevertheless, with the embodied sociology of financial markets, for, as we shall see, that sociology is not unimportant. The archetypal financial market is the open-outcry exchange, where contracts are made, face-to-face, by voice and by hand-signal. Such an exchange is bounded socially and physically: only members (or those delegated by members) can transact contracts; in most exchanges the number of memberships is subject to strict limits; the public is excluded from the trading floor; and members are either banned from entering into contracts off the exchange floor or can do so only in restricted ways. Although open-outcry markets have taken various different forms in different times and places, one especially significant architectural form is the pit, first invented in the U.S. agricultural exchanges in the 1870s (Falloon 1998, pp. 72-77). The pit is a bounded trading space, traditionally octagonal and stepped around the sides to allow maximum visibility, within which market-makers conduct a continuous two-sided auction. A market-maker in a pit can (and, in some exchanges, must) offer both to buy and to sell a particular asset; and he or she can also accept others’ bids and offers. Chicago exchanges are divided up into a number of different pits,
each of which trades a distinct class of asset.8

One city is linked inseparably to open-outcry trading: Chicago. Chicago was modernity’s quintessential city (Cronon 1991), and its agricultural futures pits were at its heart. A future is an exchange-traded contract in which one party undertakes to sell, and the other to buy, a given quantity of a given asset at a given price on a given future date. Agricultural futures demand standardization, for example of different qualities of grain, to make it possible to settle a contract with produce neither party has yet seen. Chicago’s pits – and the surrounding standardizing systems – helped forge modernity, and they also became key crucibles of high modernity as they migrated, from the early 1970s onward, from agricultural commodities to financial ones: the world’s first currency futures exchange; the first modern options9 exchange; the first bond futures exchange. The term “high modernity” is of course Giddens’s (see, e.g. Giddens 1990). I have no

---

8 This over-simplified description sets aside important specifics. For example, there is often a division of role between brokers, who can buy and sell only on behalf of external customers, and market-makers, who are allowed to trade on their own account but not on behalf of customers.

9 An option is a contract conveying the right, but not the obligation, to buy (“call”) or sell (“put”) a given quantity of a given asset at a given price on, or up to, a given future date.
wish to debate its virtues relative to the more in vogue “postmodernity,” but simply to signal that, at least as far as finance is concerned, the years since 1970 have been very different from the preceding half century. Financial derivatives such as futures and options are an example. In 1970, many had yet to be invented, some were illegal, and those that existed were little traded. By June 2000, the total notional amount of derivatives contracts outstanding worldwide was $108 trillion, the equivalent of nearly $18,000 for every human being on Earth.\textsuperscript{10}

Open outcry is now in retreat world-wide; soon, it may be abandoned even in Chicago. It is worth examining, however, not just because of its historical significance but because of the nature of interaction in pits. Pits are places of the body. True, participants are of course clothed, and they carry pencils and pieces of paper (the tickets on which traders are recorded, now increasingly complemented or replaced by hand-held computers). But voices and hand signals are the key media, and the stories participants tell are often stories of the body: of the voice coach who taught them to shout all day without becoming hoarse; of the way one’s knees start to give way, in middle age, from standing all day; of the fear of being

\textsuperscript{10} Data from Bank for International Settlements, \url{http://www.bis.org}
stabbed in the eye, in a crowded pit, by one’s neighbour’s pencil; of surreptitious\textsuperscript{11} sips of water (but not too much, because it may be unwise to have to leave the pit for pressing bodily reasons); of spit, and sweat, and smell; of the inevitable fights:

You get people who’s trying to position themselves closer to the brokers and there is jostling there, who gets better position. And then you get certain people there who are just ... bullies and that’s how they make money. ... They intimidate other people, whether it be physical or financial, and every once in a while you just got to put them where they belong. So whether you do it in their face or knock the shit out of them from behind, by accident of course, just every once in a while. ... There’s all kind of people there and that’s what the fights are all about. ... Now you’re paying attention to the market and this idiot’s sitting in front of your face and screaming at you to give him a 5-lot.\textsuperscript{12} “Get out of my face.” And every once in a while they just don’t. Well, if they don’t you just have to shove

\textsuperscript{11} They are surreptitious because of bans on the consumption of food or liquid on the trading floor.

\textsuperscript{12} In other words, a small contract.
them back. If he doesn’t, if you nudge him a little bit and he doesn’t move, you just have to hit him. That’s the way it goes. It’s unfortunate, but that’s the way it is.\textsuperscript{13}

It is a world where primeval intuitions – perhaps especially the capacity to detect the bodily signs of fear – can be crucial economically:

One day I was in Chicago, I was walking in the street and suddenly I see some people running, from being immobile to start running, and they were running up the stairs [of the Mercantile Exchange]. I followed them, and then you see people coming from everywhere in Chicago wearing jackets,\textsuperscript{14} running, and something had happened in the market that made the S&P move like 15 points or something. Someone resigned. But it’s so ... it’s like animals. They know that something’s going on and they run. The first instinct is

\textsuperscript{13} It should be emphasized that fighting is against exchange rules and is subject to heavy fines; it is occasional rather than commonplace.

\textsuperscript{14} Traders wear brightly coloured jackets with initials or an acronym identifying them or their firms.
run to the pit. And they were coming from everywhere like ... like ants, rushing. ... It’s chemistry between participants. ... You understand, these guys are looking at each other ... for 10 years ... for 20 years. ... They go to each other’s houses, and they’re each other’s best friends, and everything. Now one of them is a broker. He has an order to sell. They can read on his face if he’s nervous or not. They can read it. They’re animals. They detect things.

Even in the absence of cues of this kind, the overall bodily behaviour of the “crowd” in a pit, especially the overall noise level, can convey useful information – so much so that those trading at a distance sometimes demand to have the hubbub relayed to them down telephone lines. The time and space advantage of “locals,” as they are called (self-employed traders who provide much of a pit’s liquidity), and of other market-makers physically present in the pit, consists in part of access to sensory information of this kind: the prices recorded by pit reporters, and transmitted electronically to the outside world, lag behind this sensory information by economically crucial seconds. When open outcry pits are replaced by electronic trading systems, former locals sometimes seek to have their interfaces with the system designed, as much as possible, to replicate this multi-sensory input,
although keeping their time advantage may be impossible.\textsuperscript{15}

The open outcry exchange is a place of intense sociality as well as a place of the body. Its members interact with each other, face-to-face, day after day, for years and even decades. Interpersonal knowledge can be key. The approach to the pit of a broker known to execute the orders of a large customer can serve as a crucial signal. Author Thomas Bass describes the efforts of the statistical arbitrageurs,\textsuperscript{16} the Prediction Company, to discover why oil futures prices on the New York Mercantile Exchange kept moving against them. Prediction Company researcher Dave DeMers was sent to the Exchange:

In order to get into the pit and see what’s going wrong, he is hired as a temporary employee by the trading firm that handles the bank’s business. DeMers is watching the pandemonium, the usual

\textsuperscript{15} One case, however, was reported to me of an electronic exchange where the bandwidth available for customers’ transactions was much less than that available to broker/dealers, thus preserving some of the time advantage of the latter.

\textsuperscript{16} Statistical arbitrage is the exploitation of patterns in prices that can be detected only by sophisticated statistical analysis and other forms of pattern detection.
hurly-burly of traders bellowing at one another and flipping hand signals off their noses, when the order based on Prediction Company’s signal arrives in New York at 3.05 P.M. Amazingly, the market quiets. Everyone turns to look at the broker fielding the order. He is trying to buy three hundred futures contracts. Each contract equals a thousand barrels of oil. This three-hundred-thousand-barrel order, in a market whose total volume is about ninety million barrels, represents a significant piece of the business on the floor.

As soon as the trader makes a move, everyone piles onto his order, and the market price starts gapping up ten, twenty, thirty dollars, before the order is finally filled. Then, as soon as his business is out of the way, the locals let the price fall, having scalped out the profits that will allow them to go home happy men. “The guys were standing around licking their fingers,” says DeMers. “By showing up at the same time every day, Prediction Company was just begging to get carved into lamb chops.”...
DeMers sees right away how to fix the problem. He recommends that a new broker be hired with a better position on the floor. If the broker could look from the futures pit into the neighboring options pit, this would allow him to detect the onset of order flow before it washed over him. Another solution is to break up orders and trade at different times of day. Soon the market friction generated by Prediction Company’s signals drops nearly to zero, for savings of close to a million dollars a year. “The guys who used to stand around licking their chops don’t know where the lamb has gone,” says DeMers (Bass 1999, pp. 273-274).

Traders suspected of having access to inside information (which is actually rare)\(^\text{17}\) are approached with due caution, and sometimes cleverly reflexive action:

\[
\text{We used to have a joke that, when [X] was the guy that came into}
\]

\(^{17}\) It is, in general, in the interest of market-makers that laws against insider trading are enforced vigorously. Otherwise, they are at risk of large losses when entering into contracts with those in possession of private information.
the crowd, make sure you traded with him and overhedge.\textsuperscript{18} So that way, if he was right, you’d make money and if he was really right\textsuperscript{19} then maybe you’d get triple damages. But you had to get his name on a ticket. ... It worked once or twice.

In an open-outcry pit, traders evaluate each other’s conduct, and practise a moral economy as well as a financial one:

This [Chicago] is a place where people think very simple in terms of people and markets. Black. White. Good. Bad. There’s an invisible sheet with an invisible line down the middle of it. This is a good guy. This is not a good guy. Nobody’s on that line. They’re either a good guy or a bad guy. Very long memories.

The punishment of those on the wrong side of this line is powerful. The formal rules of open-outcry exchanges typically stipulate that if one has made an offer to

\textsuperscript{18} In other words, take a net position similar to X’s.

\textsuperscript{19} In other words, trading illegally on inside information.
buy or to sell a particular quantity at a particular price, one has to trade with the first person “seen” or “heard” to accept the trade. But as anyone who has tried to catch a waiter’s eye can testify, there is an element of discretion in whom one sees or hears. A trader whose behaviour has offended others can find them refusing, in practice, to trade.

Three economically significant consequences follow from the sociality of open-outcry pits. First, the fact that trading happens not once, but repeatedly, between people who know each other and can monitor each other’s conduct, sustains the interpersonal trust that makes open outcry feasible. Commitments equivalent to thousands, even millions, of dollars are entered into verbally or by hand signal. They are recorded, on paper and electronically, but by each party separately. “Outtrades,” in which the two parties enter discrepant details, are, unsurprisingly, not infrequent. Although some pits are now videotaped, determining what “really” had been agreed between the parties would be a difficult, time-consuming, and often indeterminate task. So outtrades are typically settled on a rough-justice, split-the-difference basis. The possibility of opportunistic behaviour is thus obvious, but it is indulged in only rarely (as Abolafia 1996, discussing the open-outcry pits of the New York Mercantile and
Second, the moral economies of open outcry exchanges make possible the solution of collective action problems. As Olson (1980) famously noted, collective action in a world of rational individualists is inherently problematic, even when the results of that action would further the interests of all of those individualists. If those who have not contributed to collective action cannot be excluded from its benefits (as in the case of what economists call “public goods,” like clean air), the rational individual will free-ride – leave it to others to bear the costs of the necessary action. Since all individuals are rational, the action will therefore not be taken. In the Chicago markets, an instance of collective action is the epoch-making move from agricultural to financial commodities. There was a reasonable expectation that this would benefit all the members of the agricultural exchanges – and it did indeed do so – but it required sacrifices of time, money, and effort. The Chicago Board of Trade and Mercantile Exchange were not hierarchical corporations, but membership organizations, and their move into financial derivatives was thus indeed a form of collective action (and, not, for example, simply a matter of implementing a decision by a chief executive). Those involved
describe their motivation in moral terms:

We ... never thought of even asking for reimbursement [of expenses]. This was part of the concept that was inculcated into all of us: “You owe it to your community.” We had all done very nicely, thank you ... and we felt that we had an obligation to the exchange and this is how you pay your obligations.

Interviewees also describe the use of moral suasion to influence the behaviour of members of the exchanges. Leo Melamed, architect of the currency futures market and a dominant figure on the Chicago Mercantile Exchange, describes how he “became an obsessed one-man enforcer – coercing, cajoling, admonishing, pleading with our Merc [Mercantile Exchange] members to trade the currency markets. We needed liquidity, I begged. Everyone had to lend a hand. And for the most part, the floor responded to my pleas. These were, after all, my guys” (Melamed with Tamarkin 1996, p. 198). “All chits were called in” by Melamed; traders would show him their time-stamped trading tickets to demonstrate that they had done the 15 minutes of trading per day on the nascent financial market he had demanded: they would be “ashamed not to” do this
minimum for the collective good. Their personal standing in Melamed’s eyes mattered to them:

If you ever cross Leo, you’re dead. You’re off his life, off his list, he will never even return your call. He wouldn’t even nod to you in the street even if he knew you for thirty years. ... He doesn’t need you and he doesn’t need me. We need him. You cannot cross Leo.

Third, patterns of social interaction in open-outcry markets have the potential to affect pricing. One cannot be more definitive on the point, because I know of only one investigation in the literature that directly tests for an effect. Wayne Baker (1981 and 1984a; see also Baker 1984b) examined the effect of the structure of trading-floor relationships on pricing on one of the U.S. options exchanges. Baker showed that – contrary to the predictions of standard economic theory – option prices in the late 1970s were less volatile in smaller trading crowds. The social processes that in those years produced this outcome were

---

20 For more detailed discussion, see MacKenzie and Millo (2001).

21 He controlled for differences in the volatility of the underlying stock.
explained both by Baker (1984b) and by my interviewees:

... the larger crowds were ... really competitive and people would buy and sell and sometimes egos would get in the way and you’d see guys, some guy would get a trade and the next guy would say “Well, I would have paid an eighth better for twice the amount,” and there’d be screaming and shouting. But in some of the slower pits ... there wasn’t as much competition, then there would [be] more of a sharing basis, which was always a problem to some of the firms because they viewed them ... somewhat as cliques and nobody would ever break rank in terms of pricing. If an order came in, and the market would be $1/8, 1/2,23 or something ... nobody would ever sell it at $3/8, nobody would ever break rank.

Telephone and electronically-mediated trading

22 Prior to recent introduction of decimalization, prices on U.S. securities exchanges were quoted in binary fractions. Options, for example, are denominated in lots of 100 shares, but the price quoted is per share. An option contract priced at $5\frac{1}{4}/s, for example, actually cost $537.50.
Open-outcry exchanges have an intrinsic quality of locality to them. Trading takes place in a defined physical space, and is limited to defined people. This locality, I have argued, is central to the intense, embodied sociality that characterizes open outcry. But some financial commodities (bonds themselves, for example, rather than bond futures) have been traded by telephone for decades, and, even in the case of those commodities whose historic home has been open outcry, the latter is now, as noted above, in retreat globally. Do its replacements sustain any connectivities that are genuinely social?

In his pioneering comparative ethnography of financial markets, Mitchel Abolafia (1996) comes close to answering this question in the negative. U.S. government bond trading, by telephone, is described by him as “homo economicus unbound”: the restraints placed on opportunism by face-to-face interaction have disappeared.

23 In other words, market makers would offer to buy at $\frac{1}{8}$ and sell at $\frac{1}{2}$. 
Bond traders construct their own version of entrepreneurial behavior, becoming local and somewhat stylized versions of economic man. ... Self-reliance, risk-taking, and materialism are part of the culture of entrepreneurism that defines the contemporary spirit of capitalism. But the interpretation on the ... [bond market] seems narrower and more extreme than that which is in general use. Self-reliance is enacted as aggressive opportunism, and calculated risk becomes hyper-rational gaming (Abolafia 1996, pp. 19-30).

In my research, however, the telephone does not appear to be quite the enemy of sociality that it is in Abolafia’s. True, there is less need for trust in the matter of the agreed parameters of a trade. Telephone conversations are nowadays recorded routinely, and such a conversation is much less problematic to interpret than its gestural and/or shouted counterpart in a busy pit on an open-outcry exchange. Recognizable forms of moral sociality do, however, seem still present in two respects.

First is the matter of honourable treatment of others’ mistakes. The prices of
bonds, and of many other financial commodities, are typically quoted in telephone trading (or, indeed, in open outcry) using only the final two digits: the preceding digits are deemed obvious to anyone who knows where the market “is.” An inattentive participant can, therefore, make an expensive mistake by misunderstanding the implicit leading digits in a quoted price. Should it be clear that this has happened, his/her counterparty is under an informal obligation to point it out, and it seems as if this obligation is, generally, fulfilled. Second is the invocation of “fairness.” One interviewee, an economist by training, commented: “[t]he notion of ‘fairness’ comes up surprisingly often ... for an economist.” That is not to say that bonds have an absolute “fair price,” as bread was held to have in eighteenth century moral economies. Rather, overall market conditions still leave some latitude for direct negotiation between parties, negotiation that can be quite consequential in terms, for example, of their bonuses. Such negotiation is often guided, explicitly, by the search for a price (often a “rough justice” split between two possibilities) that is “fair” to both parties. Dispute over that price is perfectly possible: for example, one trader at a hedge fund with a small number of staff reports his counterpart at a larger bank arguing for a price favourable to the latter on the grounds that its benefits would have to be shared amongst a larger group of people!
Precisely how to interpret the invocation of “fairness” is unclear: an economist might well regard it as simply a verbal gloss on a transaction determined, in detail, not just in gross, by supply and demand; and the issue has not been a major focus of my research. The discrepancy between what I was told and Abolafia’s findings is also worrying. My data is more recent, and the traders I spoke to about this work out of London, not New York; they trade European government bonds and their associated derivatives, not U.S. bonds. The number of sizeable participants in the markets in which they traded was quite small: “it’s a pretty small club,” said one. (Another source – Massey 2001 – suggests that the number of people with whom a sales person in such a market will have genuinely important trading relationships is no more than 15 to 20). As with open outcry, trading in these small networks is in game-theoretic terms, a repeated game: denial of future trading opportunities was, again, available as a sanction.

Trust of a type deeper than the mere avoidance of blatant opportunism can
also develop in markets of the sort discussed in this section. An interesting instance comes from the work of Knorr Cetina and Bruegger on the foreign exchange “spot” market. There, trading takes place by email-like teletype messages, rather than by telephone, and Knorr Cetina and Bruegger have obtained a sample set of the full text of these. Consider the following two electronically mediated interchanges (from Knorr Cetina and Bruegger, forthcoming; the first two lines of each, which identify the two parties, are omitted):26

```
A
3     CHF 10 PLS
4     # InSD>6267
5     67
6     # 10 MIO AGREED
7     # VAL 27NOV96
```

24 Abolafia was studying the U.S. bond market famously portrayed in Liar’s Poker (Lewis 1990) and Bonfire of the Vanities (Wolfe 1988). Muniesa (2002), studying corporate bond trading in Paris, finds effects of social connectivities similar to those I have found.

25 That is, the market for immediate, or near-immediate, delivery.

26 I am grateful to the authors for permission to reproduce these extracts.
# MY CHF TO DIRECT

# THANKS AND BYE

# TEST BACK LOWER RATES NOW.....

# INTERRUPT#

CAN I GIVE YOU 15 MIO USDCHF PLS

# SURE 83

GTEATEE TREE GREAT. TKS

# WELCOME....

# BUYING DM SFR HERE....

# AOURND 150 MI.......

# BUT LOOKS DAMN TOPPSIH HERE.....THINKING <GB4>...ON THE TOP

Extract A begins with a trader at one bank requesting from a trader at another a quotation in Swiss francs for $10 million, without disclosing whether the intention is a purchase or a sale. The response, “6267,” offers to purchase dollars at 1.4062 francs/dollar and sell at 1.4067 (note the suppression of the leading digits). By typing
“67,” the first trader accepts the latter quotation, and the sequence ends with confirmation of the details and a perfunctory “thanks and bye.”

As Knorr Cetina and Bruegger point out, the second sequence, between different parties, is quite different: “the two parties affirm, through the specific formulations used, that they have a long-standing relationship based on trust that needs no precautions and formalities” (forthcoming, p. 58). It begins with a warning that the dollar is falling against the Swiss franc. Unlike the initiator of sequence A, the recipient of the warning does not withhold whether he wants to buy or sell: he asks to sell $15 million. He receives a quotation (again with leading digits suppressed), accepts it with effusive thanks, and the conversation continues with further exchange of information. “[E]verything is mixed into this relationship: a long-term relational commitment involving trust and perhaps friendship, business exchanges, and knowledge obtained on both sides” (Knorr Cetina and Bruegger, forthcoming, p. 58).

Can one-to-one relationships as exemplified in sequence B expand into wider collective action? In general, it does seem as if collective action is easier to sustain amongst those who interact face-to-face (Ledyard 1995, p. 121), and the privacy of telephone trading makes defections and free-riding hard to detect.
However, in forms of electronically-mediated trading in which price quotations are visible to all participants, defection is instantly detectable, and this may make simple forms of collective action possible. An interesting possible example comes from NASDAQ, the telephone and electronically-mediated stock exchange. On NASDAQ, as, for example, on the New York Stock Exchange (NYSE) or American Exchange (AMEX), the minimum “tick” size was, until recently, an eighth of a dollar. Broker-dealers’ quoted prices on NASDAQ tended to be even-eighths (to a greater extent than on NYSE or AMEX). To the extent that this was so, the minimum bid-ask spread (the difference between the prices at which a broker-dealer offers to buy and to sell securities) was $0.25, not $0.125 as it could have been if odd-eighths were used.

Two academic researchers, Christie and Schultz (1994a, p. 1839), suggested that this probably happened as the result of “an implicit agreement to post quotes only on the even price fractions.” NASDAQ broker-dealers can see others’ price quotations on the system’s screens, and, argued Christie and Schultz (1994a, p. 1834) “can easily punish an offender” (a dealer posting odd-eighths quotes) by diverting trade elsewhere. In certain stocks, the excess of even-eighths quotes largely vanished – overnight – after newspaper publicity about Christie and
Schultz’s research, and a class-action suit by NASDAQ investors on the matter was settled for $1.027 billion (Christie and Schultz, 1994a, 1994b; Cooney, van Ness, and van Ness, 2000). It is, however, not clear that the avoidance of odd-eighth quotes was the result of collective action. Christie and Schultz’s study was statistical, not observational, and they conceded had no “direct evidence” of tacit agreement or punishment of defectors (1994a, p. 1839); and price clustering can occur for reasons quite other than collective action (Grossman et al., 1997).27 Clustering can be observed in the housing market, the London Stock Exchange and the foreign exchange market. Indeed, NYSE and AMEX may well be unusual in their low levels of clustering, which may be explained by the regulatory obligation on their “specialists” (market-makers) to maintain “continuous” markets (Grossman et al., 1997).

**Sociality with anonymous trading?**

In the cases discussed in the previous section, the identities of the parties to a

---

27 Thus Harris (1991) suggests that coarse units reduce the risk of error and the length of negotiation required to come to an agreement.
transaction were known in advance of concluding it, or at least were in principle knowable. There are, however, electronically-mediated financial markets in which this is not the case. Such markets have been slower to emerge than one might at first glance assume: the screens that litter trading floors and trading rooms typically carry the results of previously concluded transactions, or indicative bids and offers, not firm ones. In the markets I have studied, only small transactions can be concluded without directly contacting – by hand-signal, voice, telephone, or electronic message – the intended counterparty. Amongst the barriers to genuine anonymity are the pervasive fear of entering into a large transaction with a counterparty who knows something one does not know: knowing his/her identity before concluding a transaction helps gauge that risk. Where genuinely anonymous trading has been implemented (for example on the German stock market since 1991), market makers tend to keep bid-ask spreads wide so as to mitigate the risk of transacting with “informed” traders.28

Anonymous trading is, however, clearly possible, as is automated trading.

28 Grammig, Schiereck, and Theissen (2001). This interesting study makes use of the fact that German stocks can be traded both on traditional, non-anonymous trading floors and via anonymous
With electronic mediation, buy and sell orders can be issued and filled by machines, and, though its extent is sometimes exaggerated, that is certainly becoming more common. Does anonymous and/or automated trading, at last, represent an end of market sociality, *homo œconomicus* finally unbound (albeit, perhaps, implemented in a machine)?

Anonymous markets come in a wide variety of forms, with important variations both in regard to price discovery mechanisms and the extent of anonymity,\(^{29}\) and there have been few sociological studies of them,\(^{30}\) so the discussion that follows is of an example of a form of sociality – imitation – that *could* be manifest in such markets. My actual example – the processes leading in 1998 to the near-failure of the hedge fund, Long-Term Capital Management (LTCM) – was actually played out largely in markets in which trading takes place electronically. I owe the reference to Yuval Millo.

\(^{29}\) In many systems, for example, anonymity ends once a deal is made (the identity of both parties is revealed in the settlement process). For a discussion of varieties of automated exchanges, see Domowitz (1992).

\(^{30}\) Almost the only such study is Muniesa (2000), but even this is not a study of trading behaviour, but of choice of forms of automation.
by telephone, but the forms of sociality discussed in the previous sections played no essential role in its crisis.

I have discussed LTCM elsewhere (MacKenzie 2000; MacKenzie forthcoming), so will be brief. The fund’s business was convergence and relative-value arbitrage, in other words identifying and exploiting “spreads” between the prices of similar assets that were seen as having become too wide (or, less frequently, too narrow). An archetypal instance is arbitrage between on-the-run bonds (newly issued, for example 30-year maturity, bonds) and off-the-run bonds (those issued some time ago, for example with $29^{1/2}$ years remaining to maturity). Many off-the-run bonds are held by those who need to hold them for long periods, so the market for on-the-run bonds is typically more liquid (it is easier to buy and sell them without undue effect on prices), and they therefore command slightly higher prices. Since the passage of time will make an on-the-run bond become off-the-run, arbitrage profits can often be made by short-selling (that is borrowing, selling, and later buying back and returning) on-the-run bonds, while buying an equivalent quantity of their closely similar off-the-run counterparts. The profits to be made are small – they are unlikely to be attractive without leverage, that is unless the requisite bond purchases can be made using borrowed funds – but they
are low risk: the twinned short sale and purchase protects one from most overall influences on the bond market, such as a rise or fall in interest rates.

At the investment bank, Salomon Brothers (where most of the group that formed LTCM came together), and then at LTCM itself, considerable profits were earned from levered relative value arbitrage trades of this general kind. So impressive were those profits that – especially after the formation of LTCM in 1994 and its strikingly high profitability – the Salomon/LTCM group spawned imitators. LTCM took care to conceal its positions from outsiders, for example by avoiding using the same counterparty for both legs of a relative-value arbitrage: anonymity was, therefore, present to that extent. But the general nature of its strategy was known – the strategy had to be disclosed to actual or potential investors – as, in practice, was its high profitability.

LTCM made intensive use in its trading of mathematical models, and amongst its partners were the 1997 Nobel laureates in economics, finance theorists Robert C. Merton and Myron Scholes. This had led subsequent accounts of the fund’s crisis to present its activities as “rocket science.” In fact, though, many relative-value arbitrage opportunities can be identified with relatively simple
models, or even simply by inspection of the history of relative prices together with qualitative understanding of the relevant markets. So the growing number of imitators of LTCM, at investment banks and other hedge funds, tended to construct portfolios that overlapped considerably with LTCM’s.

The resultant overlapping “superportfolio” was destabilized by the decision of the Russian government on August 17, 1998 to default on its rouble-denominated bonds, to devalue the rouble, and temporarily to suspend forward currency transactions by domestic banks. Although LTCM had little exposure to Russia, other holders of the superportfolio did. To cover the losses incurred there, they began to liquidate elements of the superfolio. Superimposed upon a general “flight to quality” (increase in relative preference for more liquid instruments and those with lower risk of default), in consequence, were specific declines in the prices of the assets in which the superportfolio was “long” and increases in the prices of the assets in which it was “short.” Although little or nothing at the level

31 That is, assets held by the holders of the superportfolio.

32 That is, those assets which holders of the superportfolio had borrowed and sold, and had therefore an obligation to buy and return, together with options they had sold and had an obligation to honour.
of economic fundamentals connected many of the assets making up the superportfolio, their common presence in it created high correlations (of the order of 0.7) between them once the superportfolio began to be liquidated. In consequence, negative aggregate price movements took place that far exceeded those considered plausible on LTCM’s risk model, causing huge losses, and the consequent intervention of the Federal Reserve Bank of New York to avoid the serious market disruption that would have been caused by a “fire sale” of its portfolio.

Two points are worth noting. First, this chain of events could have taken place even if detailed trading had been entirely anonymous and LTCM’s positions had therefore been entirely unknown.33 True, knowledge of LTCM’s overall strategy and of its profitability was necessary to the chain of events, but a market in which knowledge of that kind is absent is hard to envisage. Manias like the South Sea bubble aside, investors are unlikely to have confidence in an enterprise,  

33 There was a second phase of LTCM’s crisis – in effect a run on a bank (see Merton 1949) – that rested on its positions becoming known, and other market participants anticipating (and in doing so making inevitable) its failure, for example by refusing to buy, at anything other than distressed prices, any asset it was known or believed to hold.
“For carrying on an undertaking of great advantage; but nobody to know what it is” (Mackay 1841/1995, p. 60), and companies have to disclose their performance at least to their investors, if not always to the general public. So the basic preconditions of imitation are likely always to be present.

Second, a chain of events of this kind could also have been possible if all trading decisions had been automated. The superportfolio could have been constructed by machines searching the markets for relative value arbitrage opportunities. Such machines could, likewise, have been forced by risk limitation and stop-loss rules to liquidate the superportfolio in the same manner as it was liquidated by its human counterparts. In the elementary sense of sociality represented by imitation, there can be social connectivities between machines as well as between human beings.

More generally, anonymity cannot be expected to end imitation. One of the classic experiments in the social sciences is Asch’s study, in which he showed that experimental subjects frequently imitated the judgements of others (group

34 Indeed much statistical arbitrage (see note 16) is conducted by machine.
members who were collaborating covertly with the experimenter) as to the relative length of lines, giving incorrect, imitative answers to questions about which a subject on his or her own was seldom mistaken (Asch 1951). Much less well known is a variant of Asch’s experiment performed by Morton Deutsch and Harold Gerard (1955). In their variant, subjects were separated from each other by partitions, learned others’ judgements only by lights illuminating on a panel,\(^{35}\) and made their own judgements, anonymously, by pressing a button. Although imitation was less than in the face-to-face situation, it was still present. It resulted from an “informational” rather than “normative” social influence, concluded Deutsch and Gerard. With anonymity, there was no need for the subject to “conform” in order to shape others’ evaluation of his or her self, yet:

\[\text{the [subject], even if not normatively influenced, may be influenced by the others in the sense that the judgments of others are taken to be a more or less trustworthy source of information about the objective reality with which he and the others are confronted (1955,}\]

\(^{35}\) In fact, these apparent judgements were actually generated by an experimenter following the experimental schedule.
The Deutsch and Gerard experiment provides a simple model of an anonymous market. In the latter, even if participants are isolated from each other, they still receive information (rising prices, falling prices, perhaps profits made or losses incurred) from which they can make inferences, in particular about others’ judgements. Imitative behaviour, therefore, remains entirely conceivable.
Conclusion: Baboon sociology and beyond

The “baboon sociology” of financial markets matters. It matters in telephone and electronically-mediated markets, not just in open outcry; it matters with PhD-qualified professional traders, not just with the amateur investors and traders whose imitative behaviour produced the Internet bubble.\(^\text{36}\) It is worth insisting on for three reasons. The first is quite simply \textit{because} it matters – and matters economically, not just to overall historical or sociological accounts of markets. The second reason is because there is at least a possibility that some of the societies of high modernity may in practice have forgotten the importance of basic primate sociality, for example their importance to health and happiness.\(^\text{37}\) The third reason is because at least some of the theorists of such societies also seem in danger of

\(^{36}\) For a wonderful account, by a sociologist who was also a participant, see Pollner (2001).

\(^{37}\) Both the importance of sociality and its decline in the U.S. are argued by Putnam (2001). For a critical assessment of the thesis of decline, see Paxton (1999), and for an attack on Putnam’s methodology, see Edwards and Foley (2001).
I would like to end, however, with some remarks on “non-baboon” ways in which actors in high-modern financial markets are configured. The first is their configuring by economic theory, a point emphasized above all by Michel Callon (1998; see also, e.g., Garcia 1986). One interesting case of such configuring is the way game theory has been drawn on to design auctions for third-generation mobile telephony licences and earlier U.S. Federal Communication Commission licences. Firms hired game theorists to guide their bidding, thus helping to ensure the behaviour posited by the theory (Guala 2001). Another example comes from the options market. In the small, ad hoc, options market that existed in the U.S. prior to the opening of organized options exchanges, it seems as if actors behaved, not as neoclassical *homo economicus*, but as the actor posited by Herbert Simon’s behavioural economics. Instead of attempting the in practice infeasible task of calculating optimal option prices, they followed rough-and-ready heuristics. In 1973, however, there also appeared the now-classic papers on option pricing by

---

38 See, for example, the comments by Castells on “the triumph of the individual” (2001, p. 133). To be fair, Castells is aware of Putnam’s negative view of individualization, and he also notes (2001, p.
Black and Scholes and by Merton. Gradually – not as rapidly as some other accounts have implied – the Black-Scholes-Merton model was adopted in the options markets. Its use in arbitrage had the effect of pushing prices towards Black-Scholes values (MacKenzie and Millo 2001). Economic theory thus had the effect of making actors – including those who did not themselves adopt the theory – price options, not as a Simonian heuristic-follower, but as *homo economicus* should. As Callon (1998, pp. 22-23) puts it:

> yes, *homo economicus* does exist, but is not an a-historical reality; he does not describe the hidden nature of the human being. He is the result of a process of configuration. ... Of course it mobilizes material and metrological investments, property rights and money, but we should not forget the essential contribution of economics in the performing of the economy.39

That economic theory matters implies that technology also matters. There is

---

39) 131 that “Networked individualism is a social pattern, not a collection of isolated individuals.”
of course a wider sense in which the preceding sections also show that it matters: though sociality may continue in telephone and electronically-mediated trading, and even in anonymous trading, its forms do differ from those in open outcry. But technology also has its effects on the practical feasibility of the theoretical configuring of actors. Take the Black-Scholes option pricing equation, for example:

\[
\frac{\partial w}{\partial t} + \frac{1}{2} \sigma^2 x^2 \frac{\partial^2 w}{\partial x^2} + rx \frac{\partial w}{\partial x} - rw = 0
\]

where \( w \) is the price of the option,

\( t \) is time;

\( x \) is the price of the underlying asset (e.g. stock);

\( \sigma \) is the volatility of the price of the underlying asset;

and \( r \) is the risk-free rate of interest.

Its solution for a “European”\(^{40}\) call option with strike price\(^{41}\) \( c \) and expiry \( t \) is:

---

\(^{39}\) Do not take this to imply that traders became atomistic individuals: as noted above, they did not.

All I am claiming is that there is a sense that they were “cognitively” configured by economic theory.

\(^{40}\) A “European” option is one that can be exercised only at its expiry.

\(^{41}\) The strike price is the price at which the call option contract permits the underlying asset to be bought.
\[ w = xN(d_1) - ce^{(r-t^*)}N(d_2) \]

where \( N(d) \) is the Gaussian distribution function and

\[
d_1 = \frac{\ln x/c + (r + \frac{1}{2} \sigma^2)(t^* - t)}{\sigma \sqrt{t^* - t}}
\]

\[
d_2 = \frac{\ln x/c + (r - \frac{1}{2} \sigma^2)(t^* - t)}{\sigma \sqrt{t^* - t}}
\]

In principle, one could calculate the Black-Scholes price of an option by hand. But an unaided\(^{42}\) _homo œconomicus_ doing this would be unlikely to be behaving optimally: in the minutes such a calculation would take, trading opportunities would be missed; at least one input, the price of the underlying asset, would most likely change; and the risk of expensive arithmetic errors would be high. In practice, Black-Scholes solutions are generated by machine: first, off

\(^{42}\) In reality, we have to assume a human being equipped at least with pencil and paper. The purely mental calculation of a Black-Scholes solution is implausible. Some option market participants do in fact have the capacity to generate Black-Scholes values “in their heads,” but this, as far as I can tell, is not by numerical calculation of a Black-Scholes solution, but by extensive experience of Black-Scholes values, together, perhaps, with some interpolation. The “in the head” solutions are thus in a sense derivative of the technologically-generated solutions.
the exchange floor, and then carried onto it on paper sheets, such as those sold by Fischer Black; more recently by hand-held computers.

Note that technology can “short cut” the configuring of actors by economic theory. A market participant equipped with Black’s sheets or a computer can use them to generate a “theoretical” option price, without necessarily understanding the theoretical argument and mathematical procedure. Note, too, that option pricing is only an example. Calculative devices – from financial calculators to powerful computers – pervade the markets of high modernity. Frequently, the calculations programmed into these devices embody economic theory. To the extent that the output of these devices is acted upon, economic theory can be performative in a very direct way.

So the baboon sociology of financial markets, though important, is not sufficient. A better understanding of these markets demands that we enrich conventional individualistic models of the rational actor. The mutual susceptibility of baboons is also to be found in the human beings of the financial markets of high modernity; imitation, that elementary form of sociality, is to be found there too. But this better understanding also requires that we impoverish
conventional models. Unlike *homo economicus*, actual human beings have limited information processing and calculative capacities, and so they turn for aid to economic theories and to the technologies in which those theories are embedded. In so doing, they configure themselves, and can render theory performative. And if economics is performative – if it helps bring into being the world it postulates, rather than simply describing an already existing external world – then an intriguing question is raised: might it be possible, even in high modernity, to perform a different economic world?

*Epilogue: On Method*

The research I have conducted on the global financial markets, and am reporting here, has so far been pursued by entirely standard means, notably interviews. Clearly, these standard means will ultimately be insufficient for the empirical study of the dialectic of locality and globality, and new methodological possibilities need to be examined.

---

43 They can, of course, also render it anti-performative: see MacKenzie (2001).
In the area of finance, two such possibilities stand out. The first is that telephone trading (so long as it is tape-recorded) and electronically mediated trading leave permanent records of negotiations in a way that open outcry does not. Even the best ethnographic studies of open outcry markets (such as Abolafia 1996) have therefore not been able to investigate fully the fine structure of trading. The most remarkable aspect of the work of Knorr Cetina and Bruegger, discussed above, is their use of the textual traces of electronically mediated trading to capture the detailed structures of interaction. Their work, however, is so far unique in this respect; for example, to my knowledge, no-one has used tape-recordings of telephone trading to analyse in conversation-analytical detail these crucial verbal negotiations. Of course, getting access to the necessary materials would require the co-operation of the financial institutions whose property they are, but these institutions might well find the conversational analysis of trading of practical interest.

The second methodological opportunity is that trading of course also leaves traces of a different kind: price movements. To date, only a minority of sociological studies of financial markets have sought to bridge sociology’s entrenched divide between qualitative and quantitative methods: the best extant such study is Baker’s work, discussed above. The growing electronic availability of price records, and the rapidly
declining cost of such data, opens up new possibilities. Again, they could be of considerable interest. Take, for example, one of the most pervasive – and dangerous – phenomena in price movements: “fat tails.” Quantitative studies of price movements typically find that the empirical frequency of extreme events is much higher than implied by the standard lognormal distribution, and risk management systems based on the latter therefore understate risk.

Why should price distributions be fat-tailed? A possible explanation is one of the aspects of the social discussed here: imitation. As far as I am aware, the mathematical modelling of processes of imitation in financial markets has to date remained theoretical rather than empirical. But if, for example, the account I have given of the role of imitation in the demise of LTCM is correct, then quantitatively detectable traces should be discernible in the price movements of 1998. MacKenzie (forthcoming) will examine this possibility.
Acknowledgement

The research reported here was supported by the UK Engineering and Physical Sciences Research Council under its grant (GR/N13999) to DIRC, the Interdisciplinary Research Collaboration on the Dependability of Computer-Based Systems.

References


Asch S E, 1951, "Effects of Group Pressure upon the Modification and Distortion of Judgments" in Groups, Leadership and Men Eds H. Guetzkow (Carnegie Press, Pittsburgh) pp 177-190


—. 1984a, “The Social Structure of a National Securities Market” American Journal of Sociology 89 775-811


—. 2000, Understanding Agency: Social Theory and Responsible Action (Sage, London)


Goffman E, 1959, The Presentation of Self in Everyday Life (Doubleday, New York)


Griffith V, 2001, "Obesity may Feed Itself" Financial Times 3-4 November: weekend section


Lewis M, 1990, Liar's Poker: Rising through the Wreckage on Wall Street (Penguin, New York)


Massey K, 2001, "Hanging on the Telephone." Banking Technology 18

Melamed, Leo, Tamarkin, Bob, 1996, Leo Melamed: Escape to the Futures, (Wiley New York)


Muniesa F, 2000b, "Un Robot Walrasien: Cotation Electronique et Justesse de la Découverte des Prix" Politix 13 (52) 121-54


Pollner M, 2001, "Inside the Bubble: Communion, cognition, and Deep Play at the Intersection of Wall Street and Cyberspace"


