



**Are financial markets embedded in
economics rather than society?**

A critical review of the performativity thesis

Lasse Folke Henriksen

DIIS Working Paper 2009:10

LASSE FOLKE HENRIKSEN

MSc Sociology, Research Assistant
www.diis.dk/lfo - lfo@diis.dk

ACKNOWLEDGEMENTS

First of all, I would like to thank Jakob Vestergaard for valuable discussions and support in the process of writing this paper. I am also very grateful for the critical comments and suggestions given by Grahame Thomson, Paul du Gay, Glenn Morgan, Stefano Ponte, Peter Gibbon, and Anders Blok at a research seminar held at DIIS April 2009.

DIIS WORKING PAPER 2009:10

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Danish Institute for International Studies, DIIS
Strandgade 56, DK-1401 Copenhagen, Denmark

Ph: +45 32 69 87 87

Fax: +45 32 69 87 00

E-mail: diis@diis.dk

Web: www.diis.dk

Cover Design: Carsten Schiøler

Layout: Mikkel Krak

Printed in Denmark by Vesterkopi as

ISBN: 978-87-7605-326-0

Price: DKK 25.00 (VAT included)

DIIS publications can be downloaded
free of charge from www.diis.dk

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ABSTRACT

DIIS Working Paper reviews a recent influential branch within the Social Studies of Finance literature which asserts that financial markets are embedded in economics rather than in society (as scholars of the New Economic Sociology would have it). Coming from actor-network theory, the literature contributes conceptually to an extended ontology of markets and agency and empirically to an improved understanding of the importance of economist's role in constructing markets and assembling economic agency. It also draws attention to the staggering effects that material devices and technical 'details' can potentially have on the macrodynamics of financial markets. In some cases financial markets can even be performed by economics, that is, materialized in very close accordance with the economic models that describe them. From this insight they conclude that economics is a performative science and that the social sciences should consequently break down the Great (analytical) Divide between finance theory and financial markets.

However, the review finds that the literature is marked by a methodological bias. The literature works with the microsociological methods of actor-network theory and thus tends to deliver pragmatically adequate explanations of the unique local social orders observable in 'the financial laboratory'. This means that it has its primary focus on the mutual entanglements of 'universities' and 'markets', that its preferred protagonist's are the economist's and that its privileged object of analysis is economic technology. Its pragmatic outlook also gives it a preference for 'market success' rather than failure and it often exaggerates the capacity of economist's to perform markets. It tends to forget the role of politicians, political technologies, macro actors such as the state and international organizations not to mention the global asymmetries connected with the political economy of financialized capitalism. Although the performativity tradition must be seen as a further analytical development of Foucault's knowledge-power nexus, in particular his concept of 'dispositif', its focus on studying the 'laboratory' (situated social practices) disregards the historical paradigmatic forms of the 'archive' which *also* condition financial agency. A fruitful dialogue between the pragmatism of performativism and a historically oriented poststructuralism inspired by Foucault's *dispositif* analysis is called for in the future course of Social Studies of Finance.

INTRODUCTION

For the past three decades, a rapidly expanding global financial system¹ has fundamentally altered the structural configuration of power and opportunity structures in modern society. Yet the detailed workings of the financial markets that are driving this process are opaque to politicians and the public. This partly has to do with neo-liberal deregulation and the possibility of offshore financial centers, but also with contemporary finance being highly *technologized*. This is a field marked by vastly complex and specialized scientific knowledge, technologies and instruments centered on probabilistic price and risk calculations. Without math, physics and the introduction of complex calculative formulas, devices and computers, the world of economics and finance, as we know it today, would not exist. The current structure of financial markets simply would not be intelligible without drawing on the *techné* of modern economics.

The fact that technicality matters to financial markets is sociologically highly relevant. For example, it has been shown by Donald MacKenzie (2009) that the Gaussian Copula pricing model was crucial to the innovation and proliferation of a financial instrument like the Collateral Debt Obligation (CDO), which was and still is at the center of the subprime mortgage crisis and the credit bubble as a whole. The ability to model CDOs mathematically and to pool high-risk, high-profit portfolios in ways that achieved high ratings and confidence, was the key to spurring the investment behavior that led to the bubble.

¹ Since the 1980s, the financial sector has increased remarkably and become an object of intense public awareness. In fact, it is the most rapidly growing of all economic sectors (Knorr Cetina and Preda 2005b, 2ff; Sassen 2005, 19ff).

MacKenzie concludes from this: ‘At the heart of an epochal event – in the view of many, the most serious financial crisis since the Second World War – were “technical” matters such as mathematical models and credit ratings ... technical matters of this kind are not “mere details” that can safely be put aside by social scientists looking for “the big picture”’ (MacKenzie 2009, 179).

Considering the profound ordering power of finance on contemporary society, surprisingly little sociological research has been conducted in this area. However, a nascent tradition of *noneconomic* studies of financial markets has emerged in the past decade, and it is this literature that this paper sets out to review.

By some, this new work – often called ‘social studies of finance’ (SSF) – has been characterized as a ‘broad church’ (Pryke and du Gay 2007, 340) or simply a ‘set of open questions’ (Knorr Cetina 2007, 7) – in other words, a diverse and heterogeneous scientific public. In fact, this broad sense of the phrase SSF was first taken up by a number of young academics from Paris in the late 1990s who were seeking to apply a broad range of theories and methods beyond economics to the field of finance (MacKenzie 2009, 2). Contrary to, for instance, the economics of finance and behavioral economics – disciplines thoroughly grounded in a consistent theoretical paradigm – authors have pointed out that the only common grounding of SSF may be a general critical ethos towards the world of finance. At any rate, the fact remains that researchers from a broad array of social-science disciplines and theoretical paradigms today identify themselves with this acronym, which poses a serious challenge to a reviewer who is seeking to identify es-

sential features and assess the main contributions.

For this reason, this paper starts from the more narrow definition of SSF followed by a growing number of scholars who are concerned not so much with the global ordering of the financial system, but with what MacKenzie refers to as the ‘details’ of finance. More particularly, they examine ‘the effects that expert bodies of knowledge, such as accounting, financial economics and management, have on the dynamics in financial markets’.² This group of scholars follows, if not a fully consistent research framework, similar conceptual directions and a fairly similar programmatic agenda revolving around *the science and technology of finance* and *the problematic of performativity*. Unlike the eclectic character of the broader field, choosing to restrict myself to this literature strand makes it possible for me to identify key concepts, assess the main contributions, and, against this general background, position more general critical remarks that may point to further research.

I argue that, as a ‘way of thinking’ about finance, this literature contains valuable heuristic, conceptual and concrete empirical insights. In particular, its sophisticated conception of economic agency and markets and its ability to take into account the important role of science and technology in modern finance are important assets to learn from. However, it is still a nascent tradition going through a reflexive phase in which systematic empirical evidence still remains to be gathered. More critical research on the dysfunctional and political

aspects of finance is called for in order to counterbalance the tendency to focus on ‘the success stories of financial markets’. In light of the current crisis, research on technological fallibility, market collapse and the cognitive conditions of regulation must be taken further. Moreover, I suggest that performativity be combined with more Foucault-inspired, historically oriented approaches that take global institutional dynamics, paradigmatic historical forms and the social consequences of finance into account. This will counter a tendency towards microsociological orthodoxy that can be traced back to the origins of SSF in actor-network theory and the excessive preoccupation in this theory with explaining social dynamics in pragmatically adequate ways.³

The paper is divided into two sections. The first section introduces the general background of the performativity doctrine and its theoretical implications and offers a general description of its application in the study of finance, drawing on a selected number of studies. Special attention is given to Donald MacKenzie’s work on models and markets. The second section discusses the question of embeddedness and proceeds by identifying a number of critical points in the performativity literature.

SECTION I: ‘GIVE ME AN ECONOMIST AND I WILL RAISE A MARKET’. THE PERFORMATIVITY OF FINANCIAL ECONOMICS

It is important to note that SSF differ from the classic network and institutionalist ap-

² This definition has been offered by Yuval Millo and Daniel Beunza, two important advocates of SSF research <http://personal.lse.ac.uk/millo/SSFworkshop.htm>

³ On this characteristic of ANT, see Law and Singleton 2000, 767; Thrift 2000, 214.

proaches of the new economic sociology,⁴ although certain similarities can be found (cf. Fourcade 2007). One of the key differences is that the sociology of markets has traditionally been preoccupied with production markets more than with financial exchange, which is different in character (Knorr Cetina 2007, 4ff). An important similarity between performativity and institutionalist, historical social constructionist approaches to markets is that they emphasize the constructedness of markets and in this sense are also concerned with denaturalizing markets. However, the performativity approach to markets takes this point much further.

Performativity theory is roughly the story of the Paris School version of Science and Technology Studies (STS), that is, actor-network theory (ANT), which entered the realm of economics when Michel Callon published *The Lams of the Market* in 1998. Here, the affair of fellow-ANT Callon can be viewed as a fundamental rethinking of economic sociology through the lenses of the Latourian statement, ‘Give me a laboratory and I will raise the world’. Callon’s new version went like this: ‘Give me an economist and I will raise the market’. This claim must be understood in the light of ANT’s break with technological determinism, French structuralism and science studies in its accounts of the dynamics of science and technology: the complex reality of science and technology cannot be reduced to a mere effect of the social interest and context of ‘society’.⁵ The realm of science and technology forms part of and is

a constituent element of society. In fact, the laboratory was considered ‘the strategic locus’ of the social transformations that were going on in contemporary society. This was the realm in which the social was made ‘durable’, to borrow a term from Latour. As will be clear, performativity theory adopts this way of thinking about relations between science and society.

ANT is a continuation of Foucault’s way of thinking the knowledge–power nexus. Like his concept of *dispositif*, which referred to ‘paradigmatic historical forms of apparatus’ (Barry and Slater 2002, 178), the concept of the actor-network took discourse analysis further and included forms of material ordering even more explicitly than the late Foucault attempted.⁶ Callon and Latour also emphasized the dynamism of actor identities much more than Foucault. The assumption was that the identity of actors is always an effect of the objects included in their immediate network, and actors have a unique ability to translate roles in circulation (Callon and Latour 1981). Foucault’s *dispositif* was in their opinion too static and structural, and thus they suggested the term actor-network to emphasize role-dynamism and to go beyond the agency/structure dichotomy. Innovation or ‘heterogeneous engineering’ became the privileged object, microsociology the favored method (Barry and Slater 2002, 178). Simply ‘follow the scientist’ and study ‘science in action’, said Latour (1987).

This theoretical position must be seen in the light of the broader microsociological turn that took place in the late 1970s and

⁴ I am thinking here of authors such as Granovetter 1973, 1985; Fligstein 2001; Dobbin 1994; White 2002.

⁵ For an excellent account of the theoretical background to Callon’s argument, see Barry and Slater (2002).

⁶ I am particularly thinking about *Discipline and Punish* (1979), in which Foucault began to regard material objects such as building and devices and heterogeneous assemblages containing both discursive and non-discursive elements as important to power practices.

the 1980s, when the aggregate-level analysis of normative and systemic orders on the basis of methodological collectivism was increasingly superseded by a concern for cognitive order and methodological situationalism. This development first marked a shift towards agents' use of language and practical reasoning – a move towards studying the interactions of knowing and active subjects in social situations – where social structures or institutions began to be accounted for by observing their enactment and performance on a small scale (Knorr Cetina 1981, 2ff.). The most important inspiration for this movement, whose role dynamism has also inspired ANT, is probably Goffman's earlier dramaturgical approach to institutions.

When the *The Laws of the Market* was published, it sparked a heated controversy among sociological scholars and set a new tone in ancient debates in economic sociology and economics. The opening argument was, to be blunt, a fierce 'attack' that launched a two-front war against the self-perceptions of both economists and economic sociologists. Neither 'Society' (the object of sociology) nor 'Nature' (the object of orthodox economics) as a domain could any longer account for the emergence of markets, it was contended. Instead markets were thought to be constructed in the strategic locus of economics: 'the economy is embedded not in society but in economics', wrote Callon, adopting a polemical tone (Callon 1998, 30). As a result, to study markets, one should just 'follow the economists' because they have a good deal to say in defining the role structure of markets.

As we know it from the usual distinction-dismantling activity of ANT, Callon's primary task was to break free from exist-

ing accounts of the economy and the modern dichotomies from which they worked (1998, 2007). For one thing, Callon heavily contested the distinction between economics as a discipline and the economy as an object. Secondly, the ideal of separating description from intervention operating within mainstream scientific discourses, including economics and most economic sociology, was refuted (an idea going back to the ancient Greek distinction between logic and rhetoric). Thirdly, a strict disciplinary division between sociology (the science of values) and economics (the science of value) was intentionally disrupted. Callon thus continued and reinforced a nascent break with Parsons' so-called 'tacit truce' with economics that had been in the making since Granovetter's seminal essay of 1985.⁷

The central claim of Callon's argument was that economics is a *performative* scientific practice.⁸ Rather than being a neutral descriptive science, as most economists and sociologists would both have it, it is pragmatic and problem-solving, producing effects and differences in the real world. MacKenzie, one of the major protagonists of the performativity thesis, underscores this point in the title of his major work, *An Engine, not a Camera* (2006). As we know from Latour's laboratory studies, science 'travels' through networks of heterogeneous forms, natural and social – discourses, objects, persons – in ways both formal and

⁷ For comments on the role of Parsonian economic sociology in this context, see Beunza and Stark 2008, 253; Fourcade 2007, 1016.

⁸ In this paper, I focus attention on the theoretical implications of the concept of performativity rather than on other central notions, such as entanglement/disentanglement and framing/overflowing, introduced by Callon in his theory of markets (1998).

informal, thus becoming linked up with action and cognition. It ‘overflows’ the confines of universities, becomes a part of the reality that it claims to describe (realities that can, however, only be held intact in niches of the real world), and thus the distinction between nature, science and society becomes blurred. The practice of science is an addition to reality, not something placed outside it.

Thus in a very general sense, the performativity of economics has to do with the mobility of its objects and texts – its transformation into practice and technology. Here, Callon’s argument rests above all on broadening the definition of economics to include all economically oriented analytical activity.⁹ In other words, the statement that ‘the economy is not embedded in society but in economics’ is followed by ‘provided one incorporates within economics all the practices and knowledge, so often denigrated...’ (Callon 1998, 30). This somewhat generic meaning has been criticised for confusing economics with accounting, marketing and other professional disciplines (Mirowski and Nik-Khah 2007). In fact, it was a deliberate move by Callon in order to emphasize the convergence or blurring of the boundaries between theory and practice, between pure and applied science.

This conceptual redefinition has had a profound effect on SSF scholars, as can be detected in the great number of studies centered around the role of economists ranging from ‘pure’ financial theorists who, besides their work with equations, are in fact deeply entangled with investment prac-

tice and concrete market building (MacKenzie 2006, 1ff.), via the importance of financial analysts and experts to investment decisions and thus market development (Beunza and Garud 2007; Preda 2008), to the classificatory and taxonomic role of financial accountants (Hatherly et al. 2008), to name just a few studies.

It is not just the mobility of economics through human actors that is represented in the literature: discourses, models and numbers are also important vehicles. Here, the conduct of financial market actors is influenced by qualitative knowledge-based market assessments (Beunza and Garud 2007), simplifying mechanisms of quantitative rating technologies (Strulik 2006), financial price data estimates (Preda 2008, 217; MacKenzie 2009, 8), derivative indexes (Millo 2007) and the equations and models of finance theory (MacKenzie 2001, 2002, 2003a, 2003b, 2004a, 2004b, 2006, 2007, 2009; MacKenzie and Millo 2003; MacKenzie and Muniesa 2007a). Also, hard technologies such as stock tickers (Preda 2008), electronic screens (Knorr Cetina and Bruegger 2002; Knorr Cetina and Grimpe 2008), spread plots (Beunza and Muniesa 2005), trading room telephones (Muniesa 2008) and risk analysis computers (MacKenzie 2009, 17) put knowledge and theories into action and help transform market conditions and conduct fundamentally. This variety of studies shows that the literature is sensitive to the mobility of economics through both soft ‘social’ mediums (norms, public perceptions, conventions, cultural attributes, concepts incorporated in collective and individual actors as meaningful cognitive categories) and hard ‘natural’ media through which equations and models are engineered into material devices. This argument is neither realist nor

⁹ He defines economists as ‘economists at large’, that is, as ‘all agents who participate in the analysis and transformation of economic markets’ (2007, 336), whether academic or practical.

relativist. Finance, from this point of view, is neither arbitrary nor deterministic, but rather a *relational effect* produced and stabilized through dense social and material associations in which economics assumes a prominent position.¹⁰

This extended conception of economics as intrinsic to and constitutive of economies has thus had important consequences for the character of SSF research, which has been concerned with the mobility of financial economics. However, to say that financial economics is performative is not just to say that there is a certain degree of mobility between economics and the economy – that economic theories influence practices: it also means that economics and economists have the necessary *capacity* to construct and engineer markets. In other words, economists are viewed as the central architects of finance, and financial markets come to figure as engineered social realities and the properties of financial actors as designed and assembled. I now turn to show how the concepts of the market and economic agency are conceived in SSF, given the performativity of economics.

Conceptualizing economic agency and markets

The constitution of cognition, and more specifically calculation, is the key to understanding the role assigned to economic agency and the market. The central question for Callon is how calculation becomes possible (1998, 6ff.), a question which is also prevalent among SSF scholars. In answering this question, the literature has increasingly realized the importance of extending the notion of calculation beyond

the realm of the human brain to look at how calculative agencies are constructed and how markets are assembled as bricolages. Of course, calculation does not exist in a natural state, as the neoclassical approach would have it, but is built up and capacitated through assistive technologies (so-called prosthesis). Agency in general, and thus also in financial markets, is a network effect rather than a cause. This means that it is collective and distributed (cf. Hutchins 1995), or rather *associative*. The individual human being ‘bounded by the skin’ arguably never has the power to act on his or her own but is always aligned with, in interaction with and aided by networks of other human beings, objects and technical systems.

This is the starting point for much of the SSF literature. In most of the work cited above, it is exactly the ways in which (mobile) economic discourses, technologies and objects become linked up with economic action, which is at the center of analysis. As already mentioned, the individual investor trading in CDOs is dependent on valuation processes, which themselves require equations, which again require not only pen and paper but complex computer systems. Thus the identity and action capacity of an investor can only be fully accounted for by referring to the entirety of his material and cognitive network (MacKenzie 2009, 17). The same goes for market assessments, ratings, pricing models and estimates, derivative indexes, electronic screens, spread plots, and all the other apparatuses listed above – it is the role of object and discourses as ‘prostheses’ which is emphasized. A similar approach can be found in Karin Knorr Cetina’s work on ‘the global microstructure’ of foreign exchange markets, in which actors are integrated through

¹⁰ This argument is extended to social science as such by Law and Urry (2004).

post-social ‘face-to-screen relations’ permitted by scoping systems (Knorr Cetina and Bruegger 2002; Knorr Cetina and Grimpe 2008).

It follows directly from this extended ontology of agency that financial markets are not solely made up of human beings: they are constructed and make up technological and metrological landscapes that structure the roles of human actors. In ANT terms, they are ‘hybrid collectives’ that contain humans and non-humans existing on one immanent plane of reality in ‘a kind of flattened cohabitation of all things’ (Thrift 2000, 215). Again, economics has a creative, innovative function in translating the role structure of markets, both by formatting specific devices and in engineering the whole infrastructure of markets. A recurring motif that also stems from ANT and is reinforced by Callon and MacKenzie’s use of performativity is the heuristic image of the market as a construction site in constant change.¹¹ It calls attention to the ‘social engineering’ of markets by economics. Here, innovative ‘economic engineers’ build up and configure an infrastructure of financial exchange, where the laws of conduct are written by reflexive economists, and where economic ‘cyborgs’ are assembled from heterogeneous elements. Here, the focus of the researcher is on tracing and mapping the time–space ordering of market associations in order to explain the (techno-cognitive) networks that make possible economic action and calculation, and consequently exchange.

¹¹ In *Laws of the Market*, Callon wrote: ‘The cement market is more like an unfinished building, an eternal work site which keeps changing and of which the plans and construction mobilize a multitude of actors participating in the development, by trial and error, of analytical tools...’ (1998, 30).

As opposed to structuralist explanations of market stability as caused *a priori* by underlying social structures – whether networks, fields or institutional dynamics – performativists are absorbed with the purely immanent question of practice-emergence *ex post*: what markets do, and how they stabilize a social world (Fourcade 2007, 1019). As a result, the market is no longer viewed as ‘the unintended consequences’ of human agency, as a mere functional effect of differentiation or group interest, as a social institution, nor is it given by network density, and least of all is it a mysterious effect of the religious or natural auspices of a ‘hidden hand’. Rather, it is the visible hand of the economist that now constitutes the privileged object of market studies.

Although this market heuristic governs how the literature talks about markets, research on the historical emergence of concrete financial markets is still scarce. Only MacKenzie has conducted systematic in-depth research on the construction of a concrete financial market from a performativity perspective by analyzing the economics and market relations that preceded its emergence. In his groundbreaking study, he also goes into further detail of how financial models do not just embark on journeys and get lives of their own, but in some cases are capable of shaping markets in close conformity with their own assumptions and estimates.

Analyzing how models shape financial markets

On the conceptual level, MacKenzie’s main contribution has been to clarify the meaning of performativity analytically. He distinguishes between three forms of performativity: *generic* performativity, which refers to the mere fact that theory travels; *effective*

performativity, which refers to cases where economics has more directly constitutive effects; and *Barnesian* performativity, to refer to cases where the practical use of a theory makes the theory truer (MacKenzie 2007, 55ff.). His discussion of these concepts is informed by empirical work conducted on the Chicago Board Options Exchange (CBOE).

In analyzing the emergence of and change in this derivatives market, he stresses the simultaneous development in financial economics and shows how the two levels were closely linked. Before the beginning of the 1970s, derivatives trading had for long been considered illegitimate, and financial theory was not a field with any standing in economics (MacKenzie 2006, 1ff.). MacKenzie argues that finance theory in its modern form as formalized in the Black-Scholes formula since its publication in 1973 has been incorporated into the infrastructure of financial markets in technical, linguistic and legitimatory ways (*ibid.*, 250). It gives investors the mathematics and the technological capacity to price risks, a simple vocabulary with which to talk about complex and risky markets, and a seal of approval to publicly justify their markets as efficient. As MacKenzie demonstrates, there are numerous cases where the proliferation of elements of finance theory never succeeded in changing market practices, but in the cases of index trading and derivatives trading a particularly strong embedding of financial models has taken place which has profoundly changed market practices (*ibid.*, 252). Index trading and derivatives trading are cases of effective performativity: they are ‘successful’ market practices that simply could not work on a large scale without the use of pricing models. In this sense, the models have not just

‘traveled’ into the market realm (generic performativity), they have made themselves indispensable (effective performativity).

As MacKenzie convincingly argues, what is exceptionally interesting about the CBOE is that the adoption of the Black-Scholes equation in this specific context actually ended up affecting the verisimilitude of the theory - towards a greater convergence of theoretical and real prices. It was not just that a theory changed market practices: it changed them in accordance with its own assumptions and depictions (*Barnesian* performativity). MacKenzie’s ingenious move is to find a plausible way of measuring the effect of the Black-Scholes formula on its own verisimilitude (a concept he borrows from Popper). Thus, besides the fact that a model must change market practices, he includes two sorts of convergences that must take place for *Barnesian* performativity to exist: a convergence of market conditions (whether legal or physical) with the assumptions of the theory; and a convergence of price patterns with the predictions of the theory’s model. By extract, his analysis shows that what started out as a model based on largely unrealistic assumptions about price estimates ended up being a rather sober description of the real conditions of the options market in Chicago and providing fairly precise price estimates. This was partly due to favorable changes in legal and infrastructural circumstances, for instance deregulation and the legalization of derivatives trading. Meanwhile the price-fitting patterns between model estimates and real prices progressively improved as a result of the formula being put into practice in the actual market and thus governing more directly the expectations and conventions of economic actors: first by paper sheets with

price calculations that increasingly came to guide the conduct and decisions of individual traders by inducing arbitrage, and later as a public property for the entire trading profession when the Black-Scholes equation was implemented in autoquote software and made available on markets screens (ibid., 127; MacKenzie 2004a, 2006). It is precisely this more direct self-referentiality of theory and practice that indicates that this was a case of Barnesian performativity and establishes the fact that ‘a price is a social thing’ as something that orthodox economists must take into account (Beunza et al. 2006b).

Yet another empirical case points to the usefulness of the strong performativity claim and indicates that it has analytical potential for researchers interested in the dynamics of financial crises. I am here referring to a case of what Mackenzie calls counterperformativity, where the widespread adoption of a theory ended up undermining its own empirical validity. The episode that MacKenzie is referring to is the US stock market crash of 1987, ‘the largest-ever one-day move in stock prices... the closest post-war financial markets have ever come to a systemic breakdown’ (MacKenzie 2004a, 307-8). Here, the successive performance of option pricing theory mentioned above – based on the continuous random walk of a log-normal model – was disrupted by a sudden change in market expectations. Interestingly enough, this disruption may have been caused, or at least exacerbated (this argument is inconclusive), by the widespread application of portfolio insurance (that is, ‘the use of option theory to guide trading so as to set a floor below which the value of an investment portfolio will not fall’ (cf. MacKenzie 2004a, 308)). The so-

called ‘mechanical selling’ of stocks and futures among portfolio insurers caused further sales pressures from initial price falls and created market instability (ibid., 317). In this case, the interpretation can be made that the widespread adoption of this theoretical convention may have led to the sudden undermining of the otherwise stable price-setting patterns between the model prices and the real prices of options.

This case is extremely interesting given the discussion regarding the role of economics in the current financial crisis, as mentioned in the introduction. As several authors have pointed out, the knowledge and technology that are implemented in markets to govern risk can, thanks to complexity and uncertainty issues, end up creating so-called ‘second-order dangers’ that exacerbate the fragility of financial markets (Holzer and Millo 2005). Too much trust in the risk-curbing abilities of technologies and instruments developed by experts in finance, and too little realization that they are themselves marked by complexity and uncertainty, can have devastating effects (Arnoldi forthcoming). And this was indeed the case in the current financial crisis, in which the widespread belief in risk management and distribution as techniques securitizing and hence stabilizing the global financial system itself became a *systemic risk* and, again, magnified the partial risks of individual financial institutions and portfolios.

These cases show the usefulness of performativity in analyzing the emergence of specific markets and how they are potentially embedded in and affected by finance theory and modeling. The question I now turn to in the second section is whether financial markets are really embedded in financial economics *rather* than in society.

That is to ask, does the theory works as a more general framework within which to analyze financial markets and even the economy as such? Section two will take as its starting point a discussion of stand taken in the literature on this point and will then turn to a discussion of the broad generic performativity program and a more fundamental critique of some central biases I identify. Lastly, I offer some concluding remarks.

SECTION 2: ARE FINANCIAL MARKETS REALLY EMBEDDED IN ECONOMICS RATHER THAN IN SOCIETY? A CRITICAL DISCUSSION

The daring Callonian statement that the economy is embedded in economics rather than in society will be the starting point of this critical discussion. Yet, it must be noted that in the performativity literature the question of performativity is basically restricted to analyzing the dominant way of thinking about the economy and economics: it looks at the relationship between neoclassical theory and markets.

There are basically two ways of criticizing this approach to financial markets. One way is to claim that we cannot learn much about how financial markets work from economists: we must study larger dynamics that can be explained by heuristic and abstract categories such as financial capitalism that refer to the systemic character of finance. Such an approach can recognize that it may appear to us as if economists affect economies with their theories, but they do so by adopting roles within a larger ideological, discursive or institutional framework, not so much through their unique capacities and their situated knowl-

edge practices. This type of argument basically says that the theory of performativity delivers structurally inadequate explanations of markets, and hence we need to abandon this framework or at least to add other theories, whether systems theory, structuralism or political economy, so as to compensate for this lack of explanatory power. The second way of criticizing performativity is to do it immanently: to recognize its conceptual and empirical contributions to the technicality of markets and the expanded comprehension of economics, markets and agency, *but* to develop further its flaws and blind angles and transgress any orthodoxies that may constrain empirical curiosity.

In the following I want to do two things. First I want to argue for the second type of critique, which proposes that performativity in its current form is too narrow and too concerned with the performativity of economics, that is, too concerned with academia as a strategic center. Instead one should talk more widely about performing finance and the economy – that is, the importance of situated enactments of financial and economic processes – without supposing that it is necessarily the economists who are the main protagonists. However, in relation to the first kind of criticism, I also want to concede that there are forms of knowledge that we cannot obtain by simply following the actors, that there are patterns of action disposition that are not visible ‘in the laboratory’. Contrary to traditional political economists, however, I do not wish to argue that capitalism is working behind our backs and that we are just puppets in an ideological or structural game controlled by structures of class and capitalization. Here, I would rather position myself in the tradition of a Foucauldian

historical sociology that takes seriously the *longue durée* of the dispositional action patterns that appear when we study social and political practice in ‘the archive’. This is a sociology that not only looks at situated knowledge practices and the dynamism of role structures, but also analyses the emergence of certain paradigmatic modes of knowing and acting that converge across ‘modern’ institutions. This is also a sociology that not only considers the ‘technicality of markets’, but also historicizes the ‘political economy’ of the economy as a historically constituted governmental rationality very closely linked with the emergence of the modern state and our conception of what a society is and ought to be (cf. Foucault 1977).

Two future directions for performativity

One can make two compatible but very distinct readings of Callon’s original argument. One supports a generic conception that looks at the market as something which is constantly being performed by the actors involved and is constituted by their active and innovative participation. Markets are specific, heterogeneous, constructed and so on. Economics as a provider of *economizing* technologies and discourses plays a role *to the extent* that its objects travel and are adopted for use by agents. The degree to which economics plays a role here is an empirical question and not the starting point of analysis. The basic methodological point is to look at *the economizers* – an open category referring to the group of actors who have the power to influence how the economy is being performed. The other reading focuses not so much on markets being performed per se (although this is a fundamental assumption), but much more specifically on the

performativity of economics. It thus has a very explicit focus on searching for the constitutive effects coming from the scientific realm. Its starting point is the *a priori* assumption that economists (academics and practitioners) do indeed have the power and capacity to construct markets according to their own depictions of them, which makes them the main protagonists whom we should follow in order to learn how markets function.

The first reading I call the weak performativity claim, and the second the strong claim.

The two readings mark a difference in research interests and certainly (often) also indicate the academic background of the researcher. In ANT terminology, the first reading takes as its starting point the economic and financial actor-networks that order the endogenous role structures of markets, whereas the second reading is primarily concerned with studying the practical capacity of economists to translate the role structures of their ‘actor-worlds’/frames (theories, models etc.) into proper market networks that enact those role structures. Crudely put, the first is primarily interested in markets, the second in theory and its materialization. I am aware that this is an analytical distinction which Callon, MacKenzie and others are trying to transgress, but nonetheless I find it useful as a yardstick to assess where the research interest within the SSF literature is heading.

The methodological prescriptions of the performativity thesis and the ways in which they have most recently been pursued suggest that performativity research is heading in the direction of the second reading. This can be seen in the SSF literature from its prevalent focus on analyzing the role of

economic theory in market building and the constitutive practices of economist. The methodological prescription that we should study economics *rather* than society is being followed.

The negative prescription is, do not study the social if you want to understand markets. This prescription depends on a crude contraction of the rich but murky category of the social. It is important to be precise about how Callon understands this category, which in effect is being expelled from the realm of economics. His discussion of this matter is somewhat simplistic and tends to treat sociological theory as one consistent paradigm that explains everything by referring to the ‘social context’. He wants to rid social studies of markets from the automatic mechanism of turning to aggregate concepts such as culture, structure, moral community and capitalism in order to explain economic orders (Callon 1998, 1ff.). Especially the functionalist and structuralist legacy of classic sociology and political economy are the targets of Callon’s idiosyncracies – a tradition that he and Latour already broke with in the early years of ANT with their article *Unscreening the Big Leviathan* (1981), where they argued for a microsociological turn, even when analyzing macro-actors such as states. Consequently, they cleansed society of any normative, functional or system core, whether in the production relations of modern capitalism or in the moral community that binds together the differentiated fragments of modern society. In this sense, when Callon refutes the ‘social embeddedness thesis’, it amounts to what any sociologist would refute: that markets can be seen as mere instances of ‘the social’. In its original ANT version, this argument was meant to counter tendencies towards social

determinism and to get rid of any a priori methodological assumptions about where to look and where to find the constitutive objects of markets. However, given that very few sociologists actually work from the methodological framework that Callon is attacking, it seems that to rid economic and financial sociology of ‘social’ explanations would be futile.

The positive prescription, however, runs as follows: in its fascination with the capacity of economics, this approach, as I argued above, ends up being caught up in its own a priori methodological assumption. Markets are ordered on the local level by economists, and market actors do not take orders from politicians or even from their own impulses, but are mostly formed by their immediate socio-technological network. Historical, political, moral, cultural etc. relations *can* either be externalized from a market network, *or* be configured in such a way that it enhances the role structure of neoclassical economic theory, or so the assumption goes. This means that economists although with great difficulty, according to this line of argument, are always already capable of creating a calculative market rationality among economic actors, in spite of markets being historically specific (Callon 2007, 331). As a result, theory is a better strategic object of study than ‘society’, ‘history’ or ‘the social context’ – it is a quasi-universal basis of calculation – and thus economists can tell us more about how economies work than sociologists.

The only scholar who really engages in this discussion is MacKenzie, who is himself nuanced and highly ambivalent when it comes to the embeddedness problematic. So, what is his stand on these methodological prescriptions? His analysis of the

CBOE clearly shows that the performativity of economics is a fruitful framework for investigating the cognitive order, transformation and practice of such technical financial markets. This would *prima facie* support Callon's strong assertion that markets are embedded in economics rather than in society. However, MacKenzie's investigation also shows the limitations of this approach and points to the impossibility of disentangling normative and cultural order from financial markets. Markets are also *moral* and *political* markets, MacKenzie argues, while explicitly adopting a historical and cultural understanding of the performativity of financial markets (MacKenzie and Millo 2003, 111). The evidence is clear: the emergence of CBOE was initially largely driven by personal interests and connections between a few protagonists who invested large amounts of money and time, not for selfish reasons, but for the sake of building a market. The result was the creation of a strong moral economy – not a self-interested homo economicus – where notions of respect and obligation conditioned market behavior, not just rational considerations. This more traditional hierarchical role structure (which played a central role in committing actors through membership and stabilizing a market network) did not just wither away as the market became more advanced and technological. On the contrary, a great deal of path dependency could be observed: even when the Exchange became a large and successful market, the pure version of a rationally calculating homo oeconomicus was still not very evident (*ibid.*, 119).

Another problem related to an empirical focus on the performativity of economics is that, as MacKenzie also notes, the theoretical breakthroughs in finance theory at

the beginning of the 1970s were themselves linked to broader social transformations in postwar Western societies, especially the US. The intellectual changes in financial theory – which also helped transform markets – were interwoven with, among other things, the structure and magnitude of the US business school system, which was expanded and academized partly thanks to a report published by the corporate Ford Foundation. Meanwhile the financial sector as such was entering a period of enormous expansion, and consequently knowledge of finance was in demand. An economic field that had hitherto been considered low in status was now slowly beginning to gain legitimacy, not only because of scientific interests and formalization, but just as much due to corporate or 'social' interests (MacKenzie 2003a, 832).

I would like to list a number of ways in which MacKenzie refines Callon's performativity claim and thus creates a better starting point for the future course of SFF. First, he focuses attention on the historical dimension of markets, the *actual* conditions within which financial economics moves into concrete financial markets, thus adopting a more empiricist attitude towards performativism (MacKenzie and Millo 2003, 111). This recognition of path dependency means that he downplays the extreme role of dynamism that some SSF scholars tend to presume. Secondly, he explores the potential for precise empirical inquiries into performativity when attempting to measure a theory's specific impact on its own verisimilitude (MacKenzie 2004a, 306). Thirdly, he recognizes that financial markets are also embedded in more durable social structures, that they form moral and reputational communities, interpersonal trust networks, and that they depend on proc-

esses of symbolic sanctioning (MacKenzie and Millo 2003, especially 139ff.). As is obvious in the case of the CBOE, such markets are also entangled in specific political, geographical and institutional conditions (MacKenzie 2006, 1ff.). Especially, the political dimension of finance is something that MacKenzie has lately begun to emphasize as an important precept for SSF (cf. MacKenzie 2009, Ch. 2). Consequently, he acknowledges the limitations of performativity (in the strong sense) and the sustained importance of classic themes in economic sociology, opens the way to more structural explanatory schemes.

These two objections against the strong performativity claim – that economics is performative – show that one needs to adopt a wider conception of performativity that incorporates various forms of role structures into a market analytic (not just calculation!) and that economic theory must itself be analyzed with great precaution as it is itself the result of genealogical formations. Callon concedes this point in a later paper (2007).

On this basis, I am not at all convinced that the second (and strong) reading works as a very good empirical *starting point* for analyzing either finance or the economy as such. But for scholars who are interested in how markets are constructed and how calculative economic agency is possible, its focus on socio-technical networks and the privileged role of theory does offer important insights. Moreover, it seems that these insights are especially important when analyzing financial markets as a specific market type, but that they may not be so interesting for economic sociology as a broader field.

Patrik Aspers (2007) goes so far as to say that the performativity thesis (he adopts

the strong reading) only works in financial markets. Thus he argues that much controversy could be avoided by making analytical distinctions between market types. He distinguishes between fixed and switch-role markets and asks whether markets are ordered by standards or by status. Since financial markets such as stock exchanges are switch-role markets, buyer–seller relations are liquid, unlike most production markets. Moreover, financial markets are predominantly governed by standards, where the value of an exchanged object can in fact be disentangled from the status and entire context of the seller. Here, value becomes dependent on contracts or the material qualities of the traded item. Essentially neoclassical price theory, which was first developed by Walras and his study of price-bidding in the Paris stock exchange, is a theory about price formation in switch-role markets and on standardized products. Aspers hints that this historical embeddedness of the theory explains why it is only in financial markets that a performative relationship between neoclassical theory and the markets can come into being (Aspers 2007, 390ff.). In its turn, theory has no significant part to play in the majority of markets, although their actors may know neoclassical theory (ibid., 389ff.).

MacKenzie's framework proved very useful in a climate in which market conditions were converging towards the conditions assumed in the price models, that is, in an intellectual and technological climate where investment practices and thus empirical prices could converge on what was predicted by the model – but lastly and importantly, only *in so far as this happened in a type of market ordered by the same liquid role structure that performativists assume is the basis of all networks*. This point seems to suggest

that the strong performativity thesis, with its focus on the engineering abilities of neoclassical theory, does not work in a great variety of contexts. This poses three pertinent questions for performativists. 1) Is the role dynamism that performativity inherits from ANT really a plausible a priori starting point for analyzing all markets, or should we begin taking into account more rigid networks that maintain market actors in predefined roles and thus prevent them from calculating? 2) As an immediate corollary of this, what are the conditions under which strong performativity can come into existence?

Thus far I have identified two different ways of pursuing a performativity approach to markets that are not necessarily exclusive, but nonetheless reveal an emphasis in the object of study, one that focuses on how economic and financial entities and processes are not just ontologically given but are objects in constant change involving its actors' performances. The other reading looks at the relative autonomy of economists in engineering markets according to their theories. The aim has been to argue that the second reading – which takes as its starting point the notion that markets are entities embedded in economics rather than in society – is a biased and unfruitful methodological prescription which restricts empirical curiosity regarding which actors are constitutive in market dynamics and how they participate. The main assumption here is that the constitutive actors are closely linked to the scientific realm and that they economize. Although I think this empirical interest in theory and science has been taken too far, I do not suggest abandoning the concept of performativity as a generic, heuristic device advising us methodologically to learn from

the actors' enrollment in markets, how they participate in shaping markets and how their interest in doing so emerges. The question is whether this generic concept of performativity, which draws attention to the actions space of agency and the role dynamism of markets, is sufficient as a market analytic?

Is it sufficient to follow the actors in their situated practice? Rising above the trees, discerning the shape of the woods

In the following, I want to argue that there are a number of methodological biases connected with following 'the economizers' – or rather that there are important forms of explanatory knowledge that one cannot obtain. This methodological bias consequently leads to a normative bias because it tends to defend and confirm the prevalent normative view of orthodox economists, namely that the market is the most successful form of organizing economic relations and ought to be the only proper one.

My starting point for discussing this is a line of criticism put forward independently by Daniel Miller (1998, 2002) and Philip Mirowski (2007). Whereas Miller's thinking comes from anthropological postcolonial critique and political economy, Mirowski takes a science studies approach to the history of economics. Thus their examples are different, but their basic argument is the same: to understand the vast influence of economists and economic thinking in contemporary society, one should *not* look inside the economy and dissect the pragmatic success of economists in building up efficient markets. Rather, one should analyze the process in which, despite its total lack of realism, economics has become the most important political and institutional authority. This is a criticism that relates directly to

the problem of social versus scientific embeddedness.

Miller works from a theory of representation which is fundamentally incompatible with ANT. The world of economic models, Miller argues, is a distorted representation, an abstraction, unable to engage in the complex social exchange of local economic practices. Economics is basically a distorting camera. A similar point is made by Francesco Guala (2007, 153), who contends that economics matters only by virtue of its normative character. The lack of critical ambition to transgress this discrepancy among performativists leads Miller to accuse them of being affirmative: 'Callon's work amounts to a defence of the economists' model of a framed and abstracted market against empirical evidence that contemporary exchange rarely if ever works according to the laws of the market' (Miller 2002, 218).¹²

While I dissociate myself from Miller's harsh normative critique, I do think his elaborate account of the increasing institutional power of economists and economic models (Miller 1998) has significant merit and points to crucial shortcomings in the performativist approach.

Miller's focus is on the (ideological) power of abstraction, which he calls virtualism. The work he draws on is a study of capitalist practices among Trinidadians, and how abstract models of the market in the form of structural adjustment programs have historically been imposed upon locally embedded production and consumer markets. The global power and spread of economic theory, namely the market efficiency model, arises in this context not from a sci-

entific, technological or pragmatic capability to construct efficient markets, but from international organizations such as the World Bank and the IMF, which possess a preponderant economic and political power that they use to impose neoliberal models of the market on developing countries (Miller 1998, 198).

It is worth noting that Miller's conception of power is very different from how power is thought of among performativists. Miller emphasizes from a macro-perspective the hard political power of economics as a property held by dominant institutions that promote strong asymmetric relations and impose centralized models on local practices from a distance. He also stresses that this power is the unintended consequence of a long historical process and of the development of capitalist role structures.

Performativists, on the other hand, look only at the soft power of economics, that is, at its ability to adjust, calibrate, calculate, assemble, and build up smoothly functioning machines and infrastructures – At how economists are in fact able to draw boundaries between the economic and the political (cf. Barry and Slater 2002, 185ff.).

Eventually this difference comes down to one thing: the nature of the translations that take places between theory and practice, as well as where one searches for these translations. Callon is clear about his stand on this issue: he searches for these translations in the space between markets and universities, where he detects a radical continuity between expert and lay knowledge and consequently looks at how theory and practice converge in a constant two-way translation process where diverse actors are included as stakeholders (cf. Callon 1998, 30). For Miller, first of all, this image places

¹² Callon (2005) has replied to this criticism, though without, in my view, bringing any new light to the discussion.

too much emphasis on consensus and continuity. Economic theory is rather exceptionally detached from practice, it offers a bad description and as long as it remains in the scientific realm it is rather harmless (note that in this phase it is still a camera, not an engine). It is not until it is translated into the political realm that it gains influence and assumes the form of a machine. When it enters global organizations or states, it turns into a 'political economy' enriched with the institutional authority to bring about and impose the worlds it is promoting – a shift from power to domination may be said to have taken place (cf. Foucault's distinction). As a result, the strategic protagonist to follow is not the practical economist but the political economist, who attempts to reform economies from a distance and succeeds, not in creating smooth market machines, but in changing whole societies.

For obvious reasons, Miller's selection of cases ends up being entirely different. Where performativity studies focus on markets being built in a Western context, Miller intentionally looks to the periphery in order to obtain comparative clarity. Where they study successful market building, he looks for failed market reforms; where they see symmetric networks emerging, he sees asymmetric institutional relations; where they see the dynamism of role structures, he sees rigidity; where they emphasize accumulation as the result of smooth calculation, he points to the negative social consequences of this (Miller 1998).

One of Miller's points in taking these positions is to stress that cultural differences are indeed manifest in economic practices across the globe and that these are hybrid practices: when it is sought to

override these differences through use of standardized market models, it is not the *techné* of economics which is the transformative force of culture. Maybe this suggests that, as a result of its being embedded in Western society and too absorbed with the reality in its immediate scope, performativity theory has problems working in other contexts than the favorable institutional settings of Western capital markets. By extension, the condition of existence of the technical and cognitive order that, according to performativism, is the key to understanding complex calculative markets can only come to exist *in so far as* a range of social and cultural conditions are met. My point here is to emphasize that, in order to test itself and its main assumptions, performativity theory must itself 'travel' and see if there are not indeed conditions it disregards by focusing so much on the science and technology of markets.

This is exactly the critical point, namely that performativity theory is itself culturally or even *economically* embedded, that is made by Mirowski (Mirowski and Nik-Khah 2007). He assumes much the same position as Miller regarding whether it is sufficient to follow the economist in order to understand markets. Similar to Miller's line of thought, but on a science studies platform, he argues that one needs to go way beyond the *thinking* of the economists in order to understand the crucial role that economics – despite its largely unrealistic models, still caught up in flawed assumptions drawn from late nineteenth-century theories of physics – has come to play in contemporary Western society as whole, and in the realm of science more specifically. In an essay co-authored with Edward Nik-Khah, he contends that the performativity thesis is itself born out of greater continuity in

the structural transformations of the modern university, where political demands for science to be cost-effective have changed the nature and aims of research. In this very essay, the authors refute the realism of the performativity thesis and conclude that behind the orders of markets (cognitive, technological etc.) lie not theories, but basically the social interests of classical macro-actors. The authors make a detailed critical inquiry into FCC auctions in the US and contest the view that it was the concepts of economists that orchestrated the resulting market, as Guala (2007) and Callon and Muniesa (2007) argue. Instead they argue that this ‘account obscures the process of determination of the goals, the methods by which the specific economists were recruited by interested parties’ (Mironowski and Nik-Khah 2007, 202). In reality, they continue, ‘the neoclassic story is so persistently flawed that it cannot be made to ‘work’ but ‘has nonetheless maintained its appearance of monolithic continuity and placid confidence not due to anything particularly conceptual that the economists have said or done; it is rather more directly attributable to more durable structures like the nation-state, the corporation, and the military’ (ibid., 216). Hence, from a methodological viewpoint, they conclude that ‘isolating the economists as the key protagonists to “follow around” again tends to distract attention from those who may be the major players involved in the construction and the shoring up of the “economy”’ (ibid., 217).

This position is supported by Saskia Sassen’s socio-geographic analyses of financial centers in the global market for capital. Sassen’s (2004, 2005) analyses prove the point that it is only under extremely advanced and specific conditions that finan-

cial markets can indeed thrive. Her work is particularly interesting from the viewpoint of the performativity thesis because she engages with the widespread notion that the global market for capital today is the closest approximation to the neoclassical market model as it operates in an environment where the model’s key assumptions do in fact exist. This understanding rests on the idea that locational constraining issues, such as government regulation and information asymmetries (embeddedness), have withered away alongside ongoing globalizing processes in recent decades (deregulation, digitalization etc.). This myth is, however, firmly dismantled by Sassen. Her comparative analysis of financial centers shows that new types of locational constraints and asymmetries have replaced the old ones. First, from the digitalization of financial activity, the development of electronic markets, and the consequential hypermobilization of financial products one might expect that financial activity would become disembedded from the spatial specificities of place, and that investors would disperse as a result of the ability to engage with markets from a distance. Instead the opposite seems to be the case. Financial activity has never been as concentrated and hierarchised in financial centers as it is in the digital age, and Sassen explains this by means of the very unique locational resources that are present in financial centers: social connectivity, organizational complexity, exceptional legal jurisdictions, infrastructural functions, highly educated financial experts, the possibility of strategic alliances and collaboration (not just competition) between firms across countries, and denationalized elites, to mention just some of the specific variables that are needed in order to run a financial

firm in the global capital market (Sassen 2004, 2005).

This reinforces the point that financial markets are indeed embedded in a broad range of particular social, geographical and historical conditions that do not merely travel from the realm of economics, but are connected to globalizing asymmetries and much more general processes of highly modern societies.

One of Callon's core propositions – that it is the *techné* of economics rather than culture or society that is constitutive of markets – may seem roughly plausible in the context of Western market society financial centers because we tend to forget the specificities that define our immediate surroundings. However, it is far from certain that such techno-optimism will thrive in non-market, emerging market or developing societies. It may be that modern physics has been able to configure laboratories so as to reproduce experiments regardless of context (to override culture or geography with *techné*), but the universality claim of the market efficiency thesis may be more difficult to implement in landlocked rural Bolivia (cf. MacKenzie et al. 2007b). This raises certain questions: Whether the scholarly focus on the pragmatic possibility of building the perfect market from economic theory is not itself embedded in the specific modernity of Western market culture and thus blind to the effects of this predefined framing? Whether the broadening mobility of economic thinking into practice (for instance, marketing and accounting) is not itself part of a proliferating Western market culture supported by powerful political and corporate actors? Whether the success of performativity theory has indeed not itself been relying on the favorable economic financial upturn

that we have witnessed the past ten years and the overall positive attitude towards market thinking?

What follows from these remarks is that performativity lacks comparative clarity and that it needs to acknowledge that the conditions of 'financial laboratories' are not just technical, but also historically, geographically and institutionally constituted. I do not see this as necessarily incompatible with the generic performativity thesis which draws on a post-Foucauldian framework and thus can be complemented by more a historically oriented analysis of paradigmatic forms, which, however, cannot be conducted in the laboratory but must be carried out in 'the archive'.

Concluding remarks

What seems to be the remaining impression of this range of criticisms for the social study of finance to take into account? First, the 'embeddedness of the economy into economics thesis' seems unrealistic as a general diagnostic framework, although it *does* point to the importance of taking 'technical details' and the constitutive effects of theory into account. However, this focus on the capacities of economics has created a methodological bias within social studies of finance that has focused too much on successful markets and calculation and on Western financial centers. Instead I have argued in favor of pursuing the generic performativity framework, which looks more broadly and with greater empirical sensitivity at economies and financial processes as performed processes involving the active participation of actors and that is open as to who are the main protagonists to follow around. However, this approach is still marked by a micro-sociological bias that focuses on the particu-

larity of situated knowledge practices and thus may become blind to wider historical patterns. Economists (and thus economic theory) who help build up the infrastructure of financial markets and assemble the financial agents who act in them are not just constitutive of actual markets – they are themselves embedded in the history and geography of the modern financial market as a historical paradigmatic form that is closely connected to the ‘political economy’ of the financial archive. This means that, contrary to the performativist notion, when economists build up markets, they do not start from scratch in organizing the calculative infrastructure of an actual market with unique creativity – they also work within and along the lines of strong path dependencies. In extension, the practice of economists in fact usually does not have the power to disentangle markets from other types of networks that have been stabilized historically, but instead they entangle them with theory and technology, despite their intention and performative effort to do so. Performativity offers important pragmatic explanations regarding the building of concrete markets, but out of this vast mass of isolated (disentangled) markets emerge, in a wide historical perspective, overarching trends towards commercialization and financialization that have prevailed for decades. Out of the multitude of cognitive orders, a larger epistemic order is precipitated.

To conclude, methodologically generic performativism offers an excellent way of studying the micro-dynamics of concrete financial markets (situated in financial centers) and the ways in which science and technology have constitutive effects on

those dynamics, especially the material and cognitive conditions of conduct. But if the aim is to offer a fuller and more global account of financial markets and their social significance, the framework is too micro-oriented and needs to balance market success with failure; local symmetries with global asymmetry; economics with politics, regulatory frameworks and institutional dynamics; market emergence and internal order with the social consequences of finance; calculations with miscalculations; and lastly ethnographic ambitions with a critical *effort* to think beyond markets and neoclassical thinking. In other words, the micro-framework of performativism must be complemented by a macro-framework. In this perspective, it is not methodologically adequate to follow the economists, interview them, observe them, and ‘raise the markets they build’ from their theoretically informed pragmatic efforts. One needs to go beyond this level and look at the unintended structural conjunctures of situated performativities in order to deliver structurally satisfactory explanations of the constitutive dynamics of financial markets. In other words, if we accept that performativity theory has a strong family resemblance to Foucault’s critical historical ontology (cf. Foucault 1987), then we must combine micro-sociological in situ ‘laboratory studies’ with a return to the studies of ‘the archive’ and the paradigmatic historical forms that can be identified there. This would re-politicize debates over the market as the necessary form of economic organization and inspire studies that not only open up the black boxes of finance, but also question their interior arrangements more fundamentally.

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