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The Complex Market: Communications of Exchange, Observing Competitors, and Prices

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Abstract

This paper proceeds from the observation that social theory has made tremendous progress in understanding markets but has not yet come up with a proposal regarding how to link the instructive albeit occasionally contradicting concepts found therein. By analyzing the present concepts in terms of their merits, compatibilities, and contradictions, we attempt to link and integrate the various existing insights in order to understand modern markets and their high complexity and dynamics. Therefore, we argue that more attention needs to be devoted to the disorder (or noise) that is being introduced in modern markets. We define the specific form of disorder on which modern markets rely as a recursive set of mutual observations in the form of competition on both sides of the market. These observations result in the projection of an inescapable and indecipherable audience and become effective through the formation of prices — processes by which complexity in modern markets increases and decreases at the same time.

Keywords: market; systems theory; economic system; complexity; observation theory.

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1 Introduction

There is no doubt that markets are a central and constitutive feature of modern society; however, considering the ongoing debates about their purpose and function, their naturalness or constructedness, and their utility and disutility, it is apparent that there is little consensus within the social sciences about what a modern market actually is. Nevertheless, there are certainly some general features that are more-or-less commonly accepted: A market is usually understood to be a socially structured place of exchange in which property rights are traded, supply and demand meet, competing offers are placed, and the price of an item or good is more-or-less homogeneous. Beyond these rather general descriptions, though, little is clear. Moreover, these generalizations prove unhelpful when our questions become more complicated.[1]

For example, does a market exist as soon as "there is competition, even if only unilateral, for opportunities of exchange among a plurality of potential parties" (Weber, 1922/1978, p. 635), or do we need a focal point (e.g. prices) to understand markets' complexities and dynamics? Does participation in market communication only include the exchange of the specific items that are bought or sold, or is not buying things equally as relevant? Is order truly the key aspect that allows us to speak of a market since an ordered market enables actors to overcome uncertainty, as claimed by Aspers (2011, p. 9), or should we also consider the idea that the market itself introduces disorder, uncertainty, or noise — challenges to which it provides a good solution? Even though there have been many telling studies about different aspects of the market (e.g. Abolafia, 1996; Vogel, 1996; Berger, 2009), little effort has been made to link and integrate the various existing insights in order to understand modern markets and their high complexity and dynamics. This omission is the motivating force behind our terminological and theoretical efforts.

The lack of integrative, conciliatory, and comprehensive attempts — tellingly, the *International Encyclopedia of Economic Sociology* (Beckert & Zafirovski, 2011) does not contain an entry entitled "market" — is all the more surprising since, conversely, social scientists and other observers, such as market participants and politicians, seem to agree more-or-less intuitively with whether or not they are dealing with a market. Apparently, there are certain types of observations, communications, and actions that bear the hallmark of a market and are regularly recognized as conclusive indicators of its classification as such. Moreover, sociologists and other social sciences almost unanimously reject the neoclassical market concept as well as the respective scientific programme, thereby appearing to know what a market is not. The neoclassical view is based on the assumption that actors construct an order of preference among outcomes, strive to maximize utility or profit, and act independently on the basis of full and relevant information. If the theoretically anticipated results regarding prices, quantities, or allocations do not materialize, suggestions are made regarding how to overcome possible distortions in the market mechanism. In this perspective, the market is primarily considered a coordinating instrument that brings together supply and demand and — as a major side effect — increases societal wealth and ensures personal freedom. A market emerges naturally given certain conditions, and the "invisible hand" (Smith, 1776/1981, p. 456) even ensures that individuals' self-interested actions automatically promote the public good. From the standpoint of sociology, criticism of the neoclassical concept points towards restrictive assumptions about the actors involved (e.g. complete information, transparency, and utility functions), towards their loss of touch with the social reality of markets, and towards their blindness to effects such as social inequality, environmental destruction, and communal disintegration (e.g. Abolafia, 1996, p. 7; Beckert et al., 2007; Aspers, 2011, pp. 70–74).

Both the "intuitism" by which markets are detected in (economic) sociology and the fierce rejection of the neoclassical approach provide reason to assume that there is a common denominator behind the patchwork of definitions and partial approaches that may be captured both terminologically and theoretically. In order to do so, the argumentation proceeds in three steps. In Section 2, we begin with a closer examination of the four theoretical frameworks that dominate current research on markets in the social sciences, namely interaction, networks, institutions, and performativity. We investigate their merits and compatibilities as well as their internal and mutual contradictions. In Section 3, a discussion of the market definition suggested by Aspers helps us to specify the missing pieces for a comprehensive understanding of modern markets. Section 4 is devoted to the introduction of the previously identified missing pieces. It is here that we draw pragmatically on theoretical ideas of sociological systems and observation theory and bind the various frameworks together. Most importantly, we take up the idea that the question of social

1. For instructive overviews, see Fligstein & Dauter, 2007; Fourcade, 2007; Aspers, 2011; Herzog & Honneth, 2014.

order has to be treated as a question of how complexity arises and is dealt with. The resulting specification of market uncertainty allows us to formulate a comprehensive definition of the modern market, which accounts for its immense complexity and dynamics. In sum, as we demonstrate in our conclusion, it is the integrative power of our understanding regarding the existing analytical approaches to the market that will hopefully inspire and advance future research on markets.

2 Four Theoretical Dimensions of Market Observation

Four recurring and historically interrelated dimensions of market observation attract interest within social theory. These dimensions can be perceived as both theoretical perspectives on and empirical properties of the market.

2.1 *First Dimension: The Market as Interaction*

The neoclassical and model-based understanding of the market and the advance of related rational choice concepts in the social sciences provoked a counter-movement that began in the 1970s and was grounded in the sociological study of economics. This counter-movement sought to eradicate rational choice approaches, or "economic imperialism" (Swedberg, 1990, p. 5), from the social sciences and explicitly aimed at demonstrating the limited explanatory power of these theories within their alleged sphere of origin, i.e. the economy. One result of this undertaking — and a variation of the embeddedness argument, which states that economic action is always embedded in social networks (Granovetter, 1985) — is the emphasis on the *interactional nature* of markets. Interactional approaches, as we call them, move away from the idea of rational, calculative players and isolated exchange relationships. These approaches assert that it is impossible to understand markets without understanding the nature of concrete interactions among human beings. Even though these approaches' understandings of interaction differ slightly in their explicitness, they coincide in their core. Most basically, interactions are seen as a kind of action that occurs if two or more people are mutually aware of one another and realize this mutual awareness. Under these conditions, interactions might continue as small social orders and create their own history amidst a larger social order or even collapse. In either case (i.e. continuation or immediate collapse), the mutual perception of — inter alia — body language, tone of voice, the viewing direction, and clothing are likely to contribute to the definition of the situation without necessarily being tangible as a (deliberate) act of communication (Luhmann, 1975/1991, pp. 9–12; Kieserling, 1999, pp. 15–23). Communication technology (e.g. the telephone and the Internet) has significantly widened the scope of interactions by loosening or even eliminating the dependence of interactions on spatial co-presence, by enabling anonymous interaction, and by strengthening the assertiveness of interactions in complex environments. The core features of interaction as a social form, however, remain largely unaffected by this widened scope.

Within the discussion on markets, interactional approaches consider interactions to be not only an essential and permanent feature of the market but also the reason that real markets differ from formal models. The emphasis on human interactions as a key element of markets can be taken either as an argument that invalidates formal market models (in a strong version) or as an explanation that complements such models (in a modest version, e.g. Knorr Cetina & Bruegger, 2002). These two interpretations notwithstanding, the interaction claim seeks to demonstrate that it would be highly inappropriate to ignore the interactional character of markets in general (i.e. the presence of social bonds and various forms of mutual integration that imply a reduction of degrees of freedom and thus contradict the characterization of markets as "*free* markets"). Even in global markets like the foreign exchange market, where face-to-screen communication has replaced face-to-face contact and seemingly anonymous electronic media set the tone at the first glance, market transactions occur in the form of human interactions (Knorr Cetina & Bruegger, 2002). In the same track, other studies have shown how opportunism and restraint on Wall Street are negotiated (Abolafia, 1996), analyzed the reasons that traders scream, sweat, and spit (MacKenzie & Millo, 2003), and observed that some markets are characterized by fixed roles and others by changing ones (Geertz, 1978).

Even though the interaction claim plausibly demonstrates the limits of formal market models and convincingly applies to various market events and their particular dynamics, it must be challenged in at least three aspects:

Firstly, problems arise with regard to the different times at which markets (e.g. stock markets) operate. Just like other interaction-focussed social theories, the interaction claim has difficulties accounting for structures (i.e. social institutions that persist beyond the immediate "here and now"). How, then, are we to characterize the market when, for example, the stock market, the farmer's market, or the store are closed but stock exchange prices and other offers to sell or buy can still be compared? Does the market still exist when there is no interaction, or does it flicker into and out of existence depending on whether interactions are currently taking place? The interaction claim would have us commit to the latter (albeit rather implausible) case. The original argument could be made by claiming that markets are characterized by both actual interactions and expectations of interactions; however, this attempt at saving the argument not only weakens the original value of the interaction claim but also ignores the idea that such expectations usually refer to structures that lie beyond interaction (i.e. structures that are neither constituted nor managed by the process of interaction itself, such as organizational structures, legal regulations, political frames, etc.). Thus, taking not only actual but also expected interactions into account seems reasonable in an attempt to understand market dynamics, but this strategy is based on assumptions that clearly lie outside of the concept of interaction.

Secondly, the increase in purely digital and largely automated markets raises the question of whether interactions are truly essential for market processes. Obviously, the market can also exist without interactions as defined above. The co-presence and mutual awareness of two or more people — be it in one physical location or mediated by telecommunication or the Internet in the sense of networked computers — is simply not necessary for market activities, as the increasing volumes that are traded by algorithms on electronic markets clearly indicate. Two or more computers might react to the actions of other computers or other actors, but this action or reaction cannot be understood to be the result of a two-sided situational definition in terms of the above-mentioned concept of interaction.

Thirdly, the pace of relevant communication processes on markets is high, especially under the influence of digitalization. The common practice in the scientific literature of reducing communication to the partners involved in the interaction (which has always been questionable as it is) is now more impractical than ever and leads to a significant overestimation of the cognitive capabilities of individual market participants. To put it the other way around, it is simply impossible to successfully identify all responsible, possible, or relevant participants in a particular communicative situation (Stichweh, 2015, p. 27).[2] In light of these criticisms, market definitions that begin with interaction — the typical examples are farmers' markets or medieval markets — soon get into trouble. By setting interactions as the prime element of the market — a decision that usually coincides with the readers' everyday experience but that can hardly be justified theoretically — these definitions are unable to keep up with the pace and noise of modern markets. Interestingly, even authors who do not explicitly represent this strand of literature, such as Aspers (2011, pp. 40–54) (whose approach will be discussed in more detail below) and Simon (2009, pp. 97–100) (a representative of systems theory), run into this trap.

2.2 *Second Dimension: Markets as Networks*

The problems that beset the interaction claim are related to the fact that the modern market displays properties such as high dynamics, unpredictability, and complexity that cannot be entirely deduced from concrete interactions, but have to be conceived of as qualities that are related to social forms in which absence is equally as important as presence (e.g. networks, organizations, society). It is to the credit of network approaches that this strand of criticism of the neoclassical market concept was further substantiated and some particular market structures were literally made visible. However, network approaches usually do not bother with market definitions. Their analyses of empirical market phenomena are simply based on the assumption that market structures consist of exchange relationships and seek to make particular patterns intelligible by using the analytical capacities of the network paradigm (Fourcade, 2007, p. 1020; Fligstein & Dauter, 2007, p. 107). In this vein, the conceptualisation of nodes as people and of edges as (market) interactions points to some complementarity between the interaction- and the network approach to markets. The insinuated theoretical congruence of these approaches, however, is noticeably weaker than a first glance would have us believe. *In fine*, the value of network analyses lies in the provision of the big picture

2. See also Gigerenzer & Brighton, 2009.

that appears when a multitude of individual interactions over time are considered in their entirety rather than in the reconstruction of the internal dynamics of interactions.

The resulting studies have been and remain impressive and influential. It all began with Granovetter's analysis of contacts and careers, in which he demonstrated that "much labour-market information *is* actually transmitted as a byproduct of other social processes" (1974/1995, p. 52). Thus, for success or failure in the job search, what network position an individual is located in and how the overall network is structured is of utmost importance. In addition to Granovetter's distinction between strong and weak ties (1973), numerous other studies have exposed insightful network patterns, such as structural holes (Burt, 1995) and interlock centrality (Mizruchi, 1996).[3] Furthermore, the network paradigm has not been confined to the academic world. Uzzi, for instance, describes how firms distinguish their market interactions between arm's-length- and special or close relationships (1996, p. 677).

The richness of the studies should not obscure the theoretical limitations of the network paradigm. General network theory as outlined, for instance, by Burt (1982) or Granovetter (1973; 1985) is not only weak when it comes to general societal structures but also tends to overload the network concept.[4] Burt (1982), Granovetter (1973; 1985), and subsequent studies in this tradition have used the concept of networks to formally describe the structure of embedding social actions in social relationships. Since social actions and social relationships constitute each other and are therefore analytically inseparable — as Bommes and Tacke (2012, p. 179) convincingly point out — the basic concept of the theory (networks) overlaps with the problem to be clarified (networks). In other words, networks are explained by networks. Following Burt's and Granovetter's line of reasoning, networks are no longer considered a contingent phenomenon; rather, they become inescapable (or "a phenomenon of *absolute social necessity*") (*ibidem*, p. 179), and it is impossible to distinguish them from other social forms, such as interactions, organizations, or markets.

In light of these limitations, the merits of White's (1981; 2002) work on markets shine even brighter. Being the first to recognize the significance of observations for the structuring of markets (for further elaborations, see Esposito, 2013; Stark, 2013), White clearly exceeds the usual framework of network analysis. Focussing on producer markets and guided by the basic intuition that firms are confronted with Knightian uncertainty, he argues that markets are structured by mutual observations within cliques of producers. Producers are thereby ranked in relation to one another, with the relative product quality serving as the central parameter. However, the resulting ranking is not directly affected by the producers themselves; rather, it is designated by the observations made on the buyers' side of the market. Under these conditions, individual producers try to find access to a niche of other producers and then to distinguish themselves from their fellow firms and their products within this niche (White, 1981). If they do not manage to engage in isomorphism so as to gain membership to a certain niche, these producers face penalties by the audience (Zuckermann, 1999). Eventually, the market is formed by an arrangement of niches, each characterized by the quality of the goods offered therein (White & Godart, 2007, p. 205). Producers (i.e. firms) thereby apparently both enact their environments and are themselves conditioned by these environments (i.e. by customers, security analysts, reviewers, etc). It is thus not only evident that a market consists of exchange relationships but also that actual and assumed observations are crucial for modern markets to come into being.

2.3 *Third Dimension: Institutions or the Invisible Market "Behind the Back"*

Disclosing market structures by the means of network analyses compensates for some of the weaknesses of the interaction approach, but these approaches still do not come to terms with the fact that the market is a social phenomenon that persists invisibly as a backdrop to the behaviour of individual actors, even if there is no current exchange. As a type of variation of the embeddedness argument, Bourdieu (2005a), Fligstein (1996; 2001), and others have pointed to the embeddedness of the market within what they call *institutions*. In so doing, they expose the fact that markets operate against a background of presuppositions, to which agents refer implicitly when participating in markets.

In order to comprehend the phenomenon of the market, Fligstein (2001) developed a sociological theory of institutions. He emphasizes that the market presupposes a great variety of formal and informal

3. For an extensive account of networks within economic sociology, see Smith-Doerr & Powell, 2005.

4. For this criticism of network analysis, see Bommes & Tacke, 2012, p. 179.

institutions: Constant negotiations regarding access to certain goods take place against a background of *property rights*. *Governance structures* refer to the general rules "that define relations of competition, cooperation, and market-specific definitions of how firms should be organized. [...] *Rules of exchange* define who can transact with whom and the conditions under which transactions are carried out" (Fligstein, 1996, p. 658). In addition, stable environments from the participants' perspective are provided by *conceptions of control*, i.e. the participants' cognitive understanding of how a market works (*ibidem*, p. 658). The very title of Fligstein's book (*Markets as Politics*) combined with his expounded view that the formation of markets is part of state-building makes clear that the formation of market institutions and the market itself are strongly related to power. In many respects, Fligstein's approach is consistent with Bourdieu's, according to which the market is the "totality of relations of exchange between competing agents" (2005a, p. 81). State regulation does not mandate specific economic behaviour; instead, it provides the framework within which market participants can interpret specific contexts and act. These participants' interpretations and actions are guided by this framework; as a result, the seemingly silent and invisible market processes become embodied. The concrete social relations, shared knowledge, and cognitive understanding among market participants thus become apparent, and their importance also becomes evident. These structures need not be updated permanently in the form of an explicit affirmation or repeated interaction between different actors; rather, they persist latently behind the participants' observable actions. As a result, references to — or possible opportunities for — economic advancement are the unspoken background context of market communications: Participants implicitly know the conditions based on which they can become involved in economic communications and what the consequences could be, even if they refrain from becoming involved at a given time or deliberately avoid such communication in certain areas.

While the interaction claim is extremely close to individual market participants, the institutional approach could hardly be further away, which begs the question of which institutional norms and rules individual actors need to know in order to participate in markets and how they become acquainted with them. There is a theoretical gap between the allegedly demanding market preconditions and the facility of joining markets. Furthermore, the distinctions between individuals, institutions, and the nation-state are problematic in that the market is presented as a very compact institution that is shaped almost exclusively by powerful political and economic forces. Little is said, however, about the unit act of this institution, which makes it difficult to dissect and analyze it. Moreover, the dominance of the political and economic factors that shape the market leaves little room to account for other factors (e.g. technological developments) that might influence market evolution. Simply put, by emphasizing the importance of institutions (i.e. by implicitly accentuating one aspect to reduce complexity), other aspects of the complex and multifaceted market structure tend to be neglected.

2.4 *Fourth Dimension: Performing Markets*

A fourth dimension goes beyond the three previously introduced dimensions by investigating how individual actors are brought into the market and how institutions are established within it. Particular emphasis is thereby placed on the implementation of policy advice in market affairs as an important objective for economics (Diaz-Bone, 2007, p. 257) and on the concept of *performativity*. The relevant research originated in the sociology of science and is now carried out under labels such as "Social Studies of Marketization" (Çaliskan & Callon, 2009; 2010) and "Social Studies of Finance" (Kalthoff, 2009, p. 266). Regarding markets, the actor-network theory has gained some importance. This theoretical line of inquiry encompasses and examines *the social* in general as "a trail of *associations* between heterogeneous elements" (Latour, 2005, p. 5). Its close liaison to holistic perspectives and its repeated use of a radical political terminology (Kneer, 2008, p. 263) enable both the theory and its adopters to argue strongly and critically against markets.

A key element of the social studies of marketization is the so-called performativity argument. Taking their cue from a highly selective reading of philosophers J.L. Austin and J. Searle, proponents of this argument hold that language does not represent, but rather yields or performs reality (for variations on this position, see Krämer, 2001). With regard to the reality of markets, Callon, for example, argues that human beings might not naturally have the ability to calculate and perform economic activities but that the *homo economicus* nevertheless exists as a historically configured reality and may be empirically observed in markets and elsewhere (1998a, p. 22). Against this background, Callon investigates how such behaviour arises and concludes that concrete markets ("the marketplace") are brought into being in a performative

manner by abstract market models (as parts of "economics") and other devices (*ibidem*, p. 1). These devices, which are named *calculative* or *market devices*, can be accounting techniques, market models, basic pricing information in the supermarket, or the like. They create and shape actors into 'calculative agencies' by equipping them with necessary tools (*ibidem*, p. 26). In establishing these tools, Callon holds that economics not only observes and describes markets but also shapes and formats them and brings forth new ones (*ibidem*, p. 2). As socio-technical *agencements*, markets are the result of heterogeneous networking processes between rules and conventions, technical facilities, texts and discourses, technical and scientific knowledge, and people (Çaliskan & Callon, 2010, p. 3).

Both the importance of associations and the performative power of economics and related disciplines in shaping the world according to their models have been illustrated in various studies (Garcia, 1986; Muniesa et al., 2007). It has been demonstrated how (allegedly rational) structures of expectation and communicative connections emerge, change, and eventually disappear, all under the influence of economics and experts, or economists "in the wild" (Callon et al., 2002, p. 196) (i.e. people who have a background in academic economics and work for management consultancy firms or global organizations, such as the International Monetary Fund, etc).[5]

In light of these studies, there can be no doubt that theoretical economic models influence practical activities within the economy.[6] However, the performativity argument begins to lose its persuasiveness when stronger claims are made for it (e.g. Callon, 1998b; Mitchell, 2005), for example, if economic models are no longer seen as one factor among many that contribute to the formation of an economic habitus (Diaz-Bone, 2007, pp. 257–258; on the economic habitus, cf. Bourdieu, 2005b, pp. 209–215) but are instead perceived as being the one and only factor that entirely dictates the formation and operation of markets.

The fact that this argument concerning the influence of economics on markets can be so easily radicalized even though its core notion is actually fairly reasonable is a consequence of some general architectonic weaknesses of actor-network theory (Mirowski & Nik-Khah, 2007; Kneer, 2008). The argument's reluctance to disclose what mechanisms lead to the adoption of economic models in practice renders it particularly prone to having a strong negative effect. The theory does not state whether power, domination, discipline (cf. Weber, 1922/1978, p. 53), or other evolutionary mechanisms, such as coincidence, deviance, opposition, and/or innovation, can explain the alleged implementation of economic models. In line with dominant normative premises and the critical mood within this field of inquiry, this theoretical void opens up the possibility of opting for a rather naïve notion of power — a notion that seems to undoubtedly point towards powerful entities. The use of transitive verbs, such as *format*, *equip*, and *shape*, corroborates these premises and establishes — whether intentionally or not — economics as the scapegoat responsible for the downsides of the current economic system. In contrast to a central theoretical premise of that line of inquiry, which demands distance from universal laws and postulates the necessity "to specify the types of trajectories that are obtained by highly different mediations" (Latour, 1996, p. 380), it often seems that both "economics" and "economists in the wild" are considered to be the source of both power and markets. Therefore, as long as this line of reasoning avoids any dialogue with more elaborated or sophisticated theories of the social — a rejectionist attitude that can be most prominently found in Latour's writings — there is little hope that the expansive categories of the concept of performativity will be controlled. Subsequently, more differentiated analyses of the mechanisms by which certain economic models are adopted and implemented in the process of communication (while others are not) are unlikely.

3 Unreflected Uncertainty: Market Definitions and Their "Blind Spot"

Each of the dimensions outlined above addresses relevant aspects of the market, and none of them offers grounds for fundamentally campaigning against the existing sociological reflections on the market. However, none of these dimensions succeeds in linking these various aspects in a comprehensive framework that could account for modern markets and their complexity and dynamics. Against this background, the current conceptualizations of the market appear unsatisfying, no matter how helpful the claims for certain

5. See especially Beunza & Stark, 2004; MacKenzie & Millo, 2003.

6. See already Luhmann, 1988, p. 81.

disciplines, perspectives, or empirical research might be (for support for this conclusion, see also Swedberg, 2005, p. 233). A notable exception comes from Aspers (2011) and will concern us in the following.

To begin, Aspers is explicit about the market, which he considers to be "a social structure for the exchange of rights in which offers are evaluated and priced, and compete with one another" (2011, p. 4). Exchange on markets is not equivalent with trade since all exchange in markets is trade, as Aspers rightly argues, but not all trade takes place in markets. This important distinction is rooted in the number of both direct and — even more importantly — indirect participants in an actual exchange, which is in turn reflected in Weber's understanding of the market. Weber stresses the importance of "dickering" as the "most distinctive feature" of the market and that by definition involves "the potential action of an indeterminately large group of real or imaginary competitors" (1922/1978, pp. 635–636). Following these considerations, we can only speak about a market if there are at least three participants, two of whom compete on one side of the market against each other for the favour of one or more actors from the other side of the market. Therefore, it is the participant on the other side of the market (i.e. a buyer or a seller) who benefits as the *tertius gaudens* by deriving advantages from this competition (Aspers, 2011, pp. 7–8).

For the market to come into being, Aspers (2011, pp. 9–10; pp. 92–100) identifies three prerequisites to overcoming uncertainty: There must be clarity regarding the question of what is traded on the market, the rules that determine legitimate behaviour and actions on the market, and the mode of value assignment to the offers traded on the market. In Aspers' view, the market that evolves once these conditions are met is always and obligatorily an ordered market: "It is only when there is order that we can talk of a market" (*ibidem*, p. 9). Apart from these basic statements and drawing on his own work on fashion markets (2010) and other sociological market accounts (such as Podolny, 1993; Podolny & Hsu, 2003; Garcia, 1986), Aspers suggests a two-dimensional typology of markets. Relating to the social structure of markets, the first dimension distinguishes between *fixed-role* and *switched-role* markets (2011, pp. 82–86). The second dimension differentiates between *standard* and *status markets* (*ibidem*, pp. 88-92). The market type (e.g. stock exchange, bazaar, consumer markets, wholesale market) influences how the above-described preconditions are met (i.e. how uncertainty is overcome).

By seriously attempting to capture the theoretical core of the market and by drawing attention to some relevant distinctions, Aspers succeeds in improving our understanding of modern markets. These merits notwithstanding, there are shortcomings. Comparable with authors like Podolny and White, Aspers also conceptualizes the market as *a response* to uncertainty and complexity. This conceptualization is not entirely new, as the above-mentioned reference to Weber's market concept demonstrates. At the same time, however, these authors refrain from further scrutinizing the uncertainty and complexity on which the market order is based. They simply take these elements for granted and thereby miss the opportunity to develop a comprehensive framework for modern markets.

At this point, we suggest conceiving of markets as the *tension between a particular form of order and a particular form of disorder*, with the latter providing the foundation for the former.[7] Understanding the particular conditions and the specific form of uncertainty and complexity in markets is thereby of the utmost importance. Metaphorically speaking, in analogy with Heinz von Foerster's notion of "order from noise" as a self-organizing structure "that eats energy and order from its [noisy or messy, the authors] environment" (1960/2003, p. 125), it is necessary to clarify what exactly the market "eats" and by whom it is "fed".

The third part of our argumentation, which follows (Section 4), sets out to investigate this issue and thereby proceeds in four steps. Firstly, we locate the market that we envision exclusively in the economic sphere. As an effect of this positioning, we can show that the coding of scarcity in the medium of property rights and in the medium of money increases the likeliness of trade and the complexity of the economy. Secondly, we relate White's insights to the cybernetic theory of observation. In so doing, we demonstrate that the market is a recursive set of mutual observations in which any attempt to reduce complexity instead increases it and thus produces new disorder. Thirdly, we specify market observations as observations that take the form of competition (i.e. an indirect struggle for the scarce favour of a third party). This definition leads us to the replacement of White's metaphor of the mirror with the notion of a projection. Fourthly,

7. For a comparable perspective on markets in line with this understanding, see Baecker, 2006, pp. 85–95; for a comparable perspective on global markets, see Bühler & Werron, 2014.

we highlight the function of prices as both the vanishing and focal point of the observations on both sides of the market.

4 The Market: Order from Self-Introduced Disorder

The market is doubtless an inherent and constitutive feature of the modern economic system. But what is the economic system? Briefly put and in line with Luhmann's systems theory, which has strongly inspired the argumentation in this paper, we begin our theoretical movements with the rather simple assumption that "there are systems" (Luhmann, 1995, p. 12). This assumption should not be taken as an ontological statement but rather as shorthand for the (self-)construction of theory (Hard, 2008, p. 264) as it assumes that "there are objects of research that exhibit features justifying the use of the concept 'system' " (Luhmann, 1995, p. 2). Systems produce and reproduce themselves by drawing and maintaining a distinction between themselves and their environments or — more specifically — by recursively connecting their own specific elements. Insofar as any system creates its own perspective on its relevant environments, a system "is" nothing other than the unity of the difference between itself and its environment. Based on this understanding, a system organizes its elements — or operations — according to its own logic, thereby "selectively steering itself into an open future" (Lee & Brosziewski, 2009, p. 4). While this definition applies to systems in general — be they machines, organisms, psychic systems, or social systems — Luhmann highlights communications that are attributed as actions (1995, p. 174) as being the basic and constitutive element of *social systems*. Hence, social systems (and among them, society as the most comprehensive social system) produce and reproduce by establishing selective relationships between communicative acts.

Modern society, Luhmann continues, is functionally divided into sub-systems known as *function systems* (e.g. law, religion, politics, science, economy). These sub-systems are perceived as having arisen in reaction to problems that became pressing as society developed from earlier forms (i.e. tribal and stratified societies) and increased in complexity. Function systems produce and organize specific forms of communications and, in so doing, create boundaries that separate them from their societal environment and differentiate them from one another. These forms of communication often — but not necessarily — take the specific form of binary codes, which allow for a precise opening and closing of the system vis-à-vis its environment (e.g. the scientific system and its true/false code, or payment/non-payment in the economic system).

In this view, economic communication deals with the problem of scarce resources, and its self-declared and widely — albeit not unanimously — accepted purpose and function is the stable provision of desired goods in the future on the basis of the present distribution (Luhmann, 1988, p. 64). Scarcity is communicated if reciprocity and calculation are implicit within the communication (i.e. if a donation is linked in calculative terms with the expectation of a donation in return). If such a calculation does not occur (which is the boundary of economic communication), abundance rather than scarcity is communicated. However, scarcity needs reference points that trigger its communication (Baecker, 2006, p. 52). A first reference point is provided by property and the distribution of use rights within society. Given that one person is the owner of a piece of property and all other people are not, the desire to own the rights to this piece of property may trigger communication (cf. Polanyi, 1944/2001). However, the communication of scarcity in the medium of property rights is cumbersome. Thus, the coding of scarcity is doubled by the medium of money. Money is the second and much more useful point of reference for economic communication. The possibility of receiving payments and the open use of money render property liquid and almost universally transformable (Baecker, 2006, pp. 48–55; Esposito, 2008, p. 126). Eventually and in line with Weber's definition, economic action is the "peaceful exercise of an actor's control over resources" (1922/1978, p. 63). The now much simplified communication of scarcity via the medium of money occurs in different structures (see e.g. Polanyi, 1957, p. 250). *In fine*, the various classifications can be reduced to two distinct forms of coordination: *tightly coupled* decision communication within hierarchies, e.g. within organizations or political communities (the loci classici for this are Coase, 1937 and Williamson, 1967), and *loosely coupled* price communication on markets (Baecker, 2006, p. 124).

At this point, two assertions can be put forward. Firstly, markets provide a structure that allows market participants to change property rights. Secondly, markets do not consist of transactions alone (or communications of exchange) since this situation would disregard the mutual and interwoven observations of the

actual and potential exchange of property rights and payments on markets. These observations within the context of one's own possibilities of receiving payment precede the eventual exchange of property rights. The market thus entails both communications of exchange *and* observations of others as well as their respective management of scarcity. The latter element serves as the important clue in the reconstruction of market-specific uncertainty.

4.1 *A Recursive Set of Mutual Observations*

As mentioned above, White was the first to stress the significance of observations for the structuring of a market. In so doing, he provided an answer to the question of how market participants deal with ubiquitous uncertainty on the market. In White's view, a (producer) market is an arrangement of niches, each characterized by the quality of the goods offered therein. Producers can thereby only observe their own side of the market (i.e. volumes of goods sold and payments received) and perceive of both buyers and their valuations as an aggregate that displays little reaction (White, 1981, pp. 520–521; White & Godart, 2007, p. 201): "Markets are tangible cliques of producers observing each other. Pressure from the buyer side creates a mirror in which producers see themselves, not consumers" (White, 1981, pp. 543–544). Equivalent to the claim that producers' mutual observations are decisive in the formation of a market, White considers observations by buyers to be equally relevant for the structuring of a certain (producer) market: Cliques of producers, whose members observe one another mutually, are formed on the basis of the observations of the buyers, who observe certain products and evaluate them as being comparable (*ibidem*, p. 519).

White's reflections on the market indeed form a crucial part of our argumentation but may be supplemented in two respects: *Firstly*, we may further *concretise the concept of observation*. Following Spencer-Brown's *theory of form* (1972), an observation designates a selective operation that is composed of the two elements of *distinction* and *indication*. Something is called to attention (and brought into being) within the intertwining of a distinction (Luhmann, 1995, pp. 439–440). Given that no observation can denominate its own distinction (i.e. it cannot indicate what it does not see), every observation has a blind spot. It is only by second-order observation (i.e. by observing the initial first-order observation with regard to the distinction it uses) that the unspoken distinction of the first-order observation can be revealed. Thus, second-order observation involves asking which distinctions the same or another observer applies in first-order observation. An example may help to clarify this point: A consumer may observe a good on parameters such as price (expensive/cheap), quality (high/low), production conditions (e.g. ecologically favourable/unfavourable, ethically desirable/undesirable), etc. Each of these distinctions contains its specific blind spot, and they may not be applied simultaneously in one and the same observation (i.e. there is always something that the observer does not see at a certain moment). The observer may illuminate this blind spot by switching from the observation of the price to the observation of quality or production conditions, or anything else. Switching between different distinctions and illuminating their respective blind spots, however, necessarily implies shifts to second-order observation. These shifts may occur consciously or habitually, thoroughly or rapidly (e.g. in purchases of extraordinary goods vs. everyday items), but recognizing that they take place at all is crucial to reconstructing the functioning of the market: It implies that the idea of stable objects has to be abandoned in favour of the view that seemingly stable objects emerge only operatively within distinctions that are repeatedly used and reused (Luhmann, 1993, p. 768). The world as we know it (which also includes the market) emerges out of recursively related observations.

If we apply these reflections to the market, it becomes clear that any observation in fact increases complexity by trying to reduce it. The first observation is mono-contextural: With the decision to sell a product at a certain price, for instance, the seller draws a distinction (to sell/not to sell) and marks its inner state (to sell) but leaves the outer state unmarked. Whether the seller would also sell at a different price is unanswerable with the observation at hand. A similar scenario can be run through for a negative sales decision as well as for purchase decisions. It is striking that the mono-contextural first-order observation might reduce complexity for the respective observer but almost automatically increases the overall complexity. Other market participants might begin to wonder whether higher or lower prices are also feasible, whether the seller's decision is due to quality aspects or to the price, or whether the buyer primarily expects gains in distinction, etc. These second-order observations revolve around the blind spot of the first-order observation and have to acknowledge that prices alone do not reveal much. Suddenly, a poly-contextural world arises with many

different distinctions and interpretations for an initial observation. Everything ends in complexity since "it is no longer possible at any moment to connect every element with every other element" (Luhmann, 1995, p. 24).[8]

As a *second* addition to White, we would like to draw *attention to the demand side and the observations of buyers*, which White only mentions in passing. In this respect, Kasuga (1987) is instructive by spelling out how consumers observe the variety of offers in terms of price and quality and how these observations affect the overall market structure. If consumers observe a large variety in one type of product such that many different prices and qualities can be compared, a broad market emerges. If, by contrast, consumers observe a limited variety, the market is perceived as being narrow. Whether the variety in a market is observed as being broad or narrow depends on a number of factors, such as the availability of observation tools, the buyers' knowledge, the type of product, and the like, which all largely defy control by producers.

Kasuga's argument implies that buyers — be they wholesalers, retailers, or consumers — are at least partly able to observe the respective other side of the market. Products — and hence also producers — become distinctive via their observed characteristics. Additionally, the observation of their own side of the market is essential for buyers as well: Individuals usually do not know what they want if they do not see what others want. It was René Girard (1978) who grasped this phenomenon with the concept of mimesis, which highlights the unconscious aspect of imitative behaviour and encompasses moments of both acquisition *and* appropriation. In this manner, mimetic processes not only reduce complexity and grant stability but are simultaneously a source of change and conflict since other buyers are both role models and rivals. Thus, current patterns of consumption are by no means determined solely by biological constants; rather, they are shaped in social contexts. As a consequence, the observation of the other side of the market opens up a range of possibilities which are evaluated by consumers who make their decisions while observing other consumers as references for the characteristics of the products that are on offer. Thus, actual needs are shaped both by members of the demand side (who observe one another) and by the members of the supply side. We can now see that the aforementioned metaphor of the mirror holds for both the supply and the demand side: Both suppliers and buyers focus primarily on themselves and present clear offers or demands to other suppliers and buyers. These offers and demands are based on a well-defined difference, which allows and invites comparison with other suppliers and buyers (Baecker, 2006, pp. 88–91).

If we sketch out the implications of this view for the formation of the market, a network of recursively referring observations becomes apparent. On the producers' — or more generally, on the sellers' — side, mutual observations within a clique of firms span the market. The clique itself is a result of the observation of products and their characteristics according to the buyers. Sellers and their products that are perceived as being comparable by the buyers become members of the clique, whereas the others are disregarded. Once sellers have achieved this kind of comparability, they strive — in a sort of counter-movement — to develop differentiated products that will enable them to escape their clique (White & Godart, 2007, p. 205).

Given the inherent degrees of freedom that any market participant or — more generally — any observer has, the predictability of the market dynamics founders on the high degree of complexity and uncertainty, which leads to the question of how individual actors make decisions in such a situation. Early research on the bounded or limited rationality of actors provided initial answers: If confronted with cognitive limitations, decision-makers might act as satisficers (i.e. they might stop searching for and calculating alternatives until a satisfying and sufficient threshold is met) (Simon, 1957). More recently, comparisons of heuristics and sophisticated models have revealed that the latter surprisingly often perform significantly worse than the apparently trivial heuristics (Gigerenzer & Brighton, 2009). For instance, if confronted with the problem of investing money in N funds, the predictive quality of the mean-variance portfolio — a tool for which Harry Markowitz was awarded the Nobel prize in economics — is no better than the simple heuristic $1/N$, which suggests allocating the investments equally to each of N alternatives (DeMiguel et al., 2009; Gigerenzer & Brighton, 2009, p. 124). The line of reasoning behind this and other similar examples is as follows: Complex models may excel in hindsight (i.e. they may have a much better fitting in comparison with less complex heuristics) yet perform poorly in foresight. Reality is simply too complex, and the future is principally uncertain to the effect that even complex models cannot cope with this amount of complexity. The challenge is not the computational capacity, but rather the estimation and weighting of the parameters in the formulas, which — from an individual actor's point of view — implies that the infinite process

8. For second-order observations on markets, see also Baecker, 2006, pp. 86–87.

of second-order observations must be interrupted at some point because no action would otherwise be possible (Squazzoni, 2013).

4.2 *Competition as an Indirect Struggle before an Inescapable Audience*

The general modes of observation described above are necessary for bringing markets into being; however, they are not sufficient to characterize the specific complexity of modern markets. Firstly, we can object to the notion that mutual observations and mimesis as expressed by White's metaphor of a mirror also exist in many other social contexts. Thus, to obtain a comprehensive understanding of the market, we still have to ask what *specific forms of mutual observation* occur on the two sides of the market. Secondly, these observations must become *effective in actual communications* in order for us to be able to speak of a market. We will deal with these two elements in this and the following subsection.

Our analytical specification of the concrete *forms of mutual observation* on both sides of the market rests upon a communication-based understanding of competition. Following Simmel, the standard characterization of competition as competition *for something* may be transferred to a social context (Simmel, 1908, p. 213; also Werron, 2010, pp. 305–307): Competition does not necessarily involve communication between the competitors, nor does it require the conscious attempt to outdo others. More generally and in contrast to the definition of conflict as a direct form of struggle, competition can be defined as an *indirect struggle for the scarce favour of a third party*. Werron (2010, p. 309) suggests replacing the notion of a third party with that of an audience as a "projection of public communication processes". This notion would prove co-constitutive for competition as it is perceived by competitors as a generalized and indivisible third entity. Whereas conflicts arise and multiply through a chain of directly interrelated contradictions between antagonists (*ibidem*, pp. 304-305), competition as an indirect form of struggle usually takes place without interactions and thus saves time and effort (Simmel, 1908, p. 213; Luhmann, 1988, pp. 102–103).

Applying this concept of competition to the market, two implications become obvious: *Firstly*, competition takes place on both sides of the market, albeit in various forms. The fact that *sellers* compete with one another for opportunities to sell their products at a certain price is easily ascertained. As soon as one acts as a seller on a market — be it for only a single transaction or more — one is confronted with this basic condition. The relations on the buyers' side are more diverse, and three general constellations can be discerned. Firstly, there are contexts in which buyers do not compete at all. This holds true, for example, for consumers purchasing everyday products in the supermarket that are usually not particularly scarce. Secondly, in certain contexts, buyers compete — similar to sellers — with one another for advantageous access and scarce purchasing opportunities (i.e. for the favour of the supply side). This form of buyer competition occurs, for instance, on markets in which buyers act as intermediaries, on financial markets, and at auctions. Thirdly, there are contexts in which buyers compete for social distinction but notably not for the favour of the other side of the market and instead for a public to which they attribute individual relevance. The reason for the multi-facetted relations among buyers in contrast to the dominance of a single competitive relationship among sellers derives from the different expectations linked to market transactions: While sellers primarily seek to (re)establish their solvency, buyers aim at various goals. In other words, the self-referentiality of the economic system is expressed on the supply side, whereas the demand side potentially represents both the self-reference and the other-reference of the economic system.

Additionally, a *second implication* of the social conceptualization of competition is worth mentioning with regard to market uncertainty. Understanding competition as an indirect struggle for the scarce favour of a third party (Simmel, 1908, p. 213) — or rather, of an audience as a "projection of public communication processes" (Werron, 2010, p. 309) — allows for a decisive sharpening of our argument. We can now ascertain that the observation of one's own side of the market is not an end in and of itself, as White's metaphor of the mirror more or less tacitly implies. Taking the logic of competition into account, the observation of one's own side instead arises out of a clear motivation and pursues a particular goal. Both the motivation and the goal stem from the observer's imagination of the audience, for whose favour the observer competes as a market participant. Moreover, it follows from observation theory that all market participants observe their competitors, but each of these participants sees something different since observations are not objectively given (i.e. observer-neutral) and instead strongly depend on the applied schemes of observation. Therein lies a further important detail that is not entirely captured by White's mirror.

In light of these objections, we suggest replacing the metaphor of the mirror — its merits notwithstanding — with a projection. A projection does not simply mirror its surroundings; instead, it allows for different elements — such as the image of the competitors and the image of the audience — to cross-fade into one another. Thus, instead of displaying its surroundings, the projection creates something new. The observers are thereby not passive; instead, they are actively involved since they themselves project what they get to see. As a consequence, the number of observations that mutually refer to one another multiplies; in other words, disorder — from which the market is nourished — increases.

Furthermore, this conceptualization comprises the idea that the audience is a specific *form* of expectations of expectations (*Erwartungserwartungen*). As such, it is both unknown and inescapable to those who imagine it: It is *unknown* due to the lack of identifiable entry barriers or visible borders, which makes it impossible to figure out who belongs to the audience and who does not (i.e. who is observing (with which assumptions) and who is not). This indecipherable audience is *inescapable* since market participants are literally thrown back onto this particular kind of projection as their main basis of decision-making. Participating in any market communication inevitably requires coping with it, i.e. acting in front of it and reacting to it.

4.3 *Prices as a Vanishing and Focal Point of Market Observation*

As indicated above, a particular form of observation alone might not be sufficient to bring the market into being. The question of how competition becomes effective in communication finally brings us back to prices. Prices regulate not only payments that are made but also those that are not (Luhmann, 1988, p. 19). Payments, which are observable in the form of prices (as the operative basis and specific elementary communicative act of the economy) involve a loss of information yet provide information in a highly condensed manner. The loss of information stems from the detachment of the price from the link to the good or service that it designates. The price itself does not tell the story of the production preconditions, of the environmental impact, or of the individual wishes and needs of buyers and sellers. In turn, information is gained by prices because by looking at them, it is possible to inform oneself about expected and realized prices and thus how other buyers and sellers observe the market (*ibidem*, p. 18). As an instrument of second-order observation, prices can be understood as being both the vanishing and focal point of the observations on both sides of the market. The communications of exchange and observations of one's own side of the market become entwined within the price: Sellers observe which products of varying quality may be sold for a certain price, and buyers observe what is bought at a certain price and how it is used (Baecker, 2006, p. 97). New data mining technologies provide the opportunity for both sides to obtain more information about the other side. For example, sellers attempt to spy on individual behaviour by using digital devices and try to enforce "tailor-made" prices, while buyers, on the other hand, use comparison sites to gain more information.

We may conclude that prices reflect second-order observations: Sellers observe the prices of other sellers and sales and infer which prices seem to be reasonable, and buyers infer what values other buyers attach to a good or service via realized prices or what prices other sellers offer via comparison sites. It is also possible to say that prices are expectations of expectations in the sense of expectations of expected payments that may then either be fulfilled or not. Consequently, it is evident that there is no possibility of a product having an objective utility value that is reflected in its price (Baecker, 2006, pp. 93–94) or of there being a rational or an equilibrium price. Whereas money dissolves "substance into free-floating processes" (Simmel, 1900/2004, p. 167) and thus increases complexity by fragmenting relations, prices provide a particular means to further dissolve substance and to deal with complexity.

5 Conclusion

Most sociological accounts of markets underline the aspect of order while either completely neglecting uncertainty or simply taking it for granted. Such accounts are not entirely wrong but are instead insufficient since they miss a crucial aspect of actual market phenomena. Indeed, a particular form of uncertainty not only proves constitutive of the market as a distinctive social structure but also causes the immense complexity and pace of modern markets. Against this backdrop, we suggested a comprehensive notion of the

market that integrates and relates the many different concepts and ideas about modern markets. Therefore, we carefully scrutinized these concepts' individual merits and shortcomings. However, the suggested conceptualization of the market is not a mere list of characteristics derived from the literature; instead, we integrated and related the various ideas on the basis of insights from systems and observation theory and within the context of the question of how order and disorder in markets are related to each other. *In fine*, we conceptualize market uncertainty as a recursive set of mutual observations in the form of competition on both sides of the market that results in a projection of an audience that is both inescapable and indecipherable to those who imagine it. Additionally, the observations become effective through the formation of prices, sales, and purchase decisions (which are themselves observations). Nonetheless, the market, which is exclusively located in the economy, can be conceived of as the *tension between this particular form of uncertainty — or noise — and a particular form of order*, with the former providing the foundation for the latter. Due to the different positions and projections of competitors, the market is perceived of differently by each participant yet is objectively the same for everyone (see also Luhmann, 1988, p. 94; Baecker, 2006, pp. 95–107).

What are the benefits of such a comprehensive understanding of the market? *Firstly* and relating to the *logic of functional differentiation*, equally considering both order and disorder allows us to separate the market from other forms of cooperation, competition, and practices of valuation that occur in other function systems of modern society. Even though comparative analyses of different forms of cooperation and valuation across the realms of the arts, the market, and professions might reveal similarities at the first glance (e.g. Podolny & Hsu, 2003), a closer examination will reveal that these forms deal with completely different forms of disorder.

Secondly and with respect to the *logic of the economy and different modes of communication of exchange*, the suggested approach helps to *analytically* demarcate the market against other forms of exchange communication. This demarcation is most evident when it comes to prices: The market comes into being as soon as both competition and sales or purchase decisions crystallize in prices; however, not every price can be taken as evidence for economic competition and communication: In contexts of strong political regulation of the economy and in which prices still exist, power rather than scarcity is communicated. Moreover, the difference between market and trade can now be readjusted: Following our argumentation, trade and the market are divergent forms of the communication of exchange that differ in the presence and relevance of the projection of an audience. Thus, the statement that "exchange in markets is trade, but not all trade takes place in markets" (Aspers, 2011, p. 7) may be refined. For markets, disorder generated by mutual observations and the projection of an inescapable and indecipherable audience is a decisive factor. Trade, by contrast, does not know such a projection or subsequently such an extreme disorder and therefore takes place out of the market but still within the economy.

Thirdly, we want to stress the *integrative capacity* of our argument with regard to the above-described dimensions of market analysis. In so doing, we deny neither the importance of interactions, networks, institutions, or formal models and their performance in the functioning of markets nor the benefits of the respective analytical perspectives. However, we do refute the idea that the market itself can be understood by analyzing one of these processes in isolation. For instance, by putting interactions in their place, it becomes apparent that important market processes occur silently and out of view of the market participants. Market participants observe others, imitate them, and compete with them for the favour of a third party (see Esposito, 2013; also Stark, 2013). The rise of (digital) observational tools accelerates, amplifies, and ultimately alters these observations. However, none of these changes affects the core of the market definition, rather, their potential for change can be derived from the market definition. A similar line of argumentation can be made with regard to institutions. Modern markets would doubtlessly cease to function without institutions. Both formal and informal institutions reduce complexity, but the inner core of the market cannot be explained based on the various relevant institutions alone (note also that cartel offices seek to ensure disorder, uncertainty, or noise in markets).

Finally, the reference to first- and second-order observations can particularly help in overcoming some of the limitations of the performativity approach and connect it to a general theory of society. In line with Esposito (2013), setting the performativity argument as put forward by MacKenzie, Callon, and others into the frame of observation theory turns performativity into a general effect of observing under the condition of uncertainty. Performativity is then no longer restricted to economic theory but pertains to

every kind of economic operation in the sense that they all "generate the reality in which they operate and the unpredictability they face as a result" (Esposito, 2013, p. 112). Economic theory, in turn, appears as a particular form of observation on the market and as one mode among others of dealing with complexity. To ensure the validity and connectivity of its observations (i.e. of economic models), economic theory aims to exclude itself from these models and to conceal its status as an observer that suggests *A* and not *B*. Its exceptional influence on the market results from the fact that it acts as an important point of reference within the network of mutual observations and expectations: "If observers follow a theory, then one can know what they observe and how. One can observe their observation and behave accordingly" (*ibidem*, p. 116).

However, the fact that dealing with complexity by means of economic theory does not dissolve complexity becomes clear if we take into account the idea that performativity inescapably goes hand in hand with counter-performativity (*ibidem*, p. 116): As soon as the process of generating a certain reality by means of a certain economic model is observed as a specific mode of observation (i.e. as soon as observation shifts from the first to the second order), alternative modes of observation come into view. Moreover, as soon as these modes are applied, the previously reality-generating model is confronted with a reality that begins to contradict its assumptions and predictions as "[t]he economy [then] reacts to itself, and not only to economics" (*ibidem*, p. 118). Operations and observations mutually refer to one another, and the uncertainty of what is actually performed and by whom eventually amplifies the disorder on the market. Against this backdrop, the concepts of performativity and counter-performativity might still be considered indicators of scientific authority or the influence of economists on the economy. In general, however, these concepts now appear as an illustration of how complexity is continuously generated on the market by each of its operations.

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