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## Performativity of economic systems: Approach and implications for taxonomy

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**No. 194**

**Performativity of Economic Systems:  
Approach and Implications for Taxonomy**

by

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## **Abstract**

The paper proposes to ground the taxonomy of economic systems on the identification of strongly performative institutions as distinctive features. I analyse performativity on the basis of the Aoki model of institutions, enriched by current approaches to performativity, which I combine with Searle's notion of a status function. Performativity is conceived as resulting from the conjunction of public representations (sign systems) and behavioral dispositions which channel strategic interactions among actors such that certain sets of institutions are reproduced recurrently. I apply this approach on the case of 'financial capitalism' and analyze three strongly performative institutions, the accounting standards (IFRS), managerial incentive systems and intellectual property rights.

**Keywords:** performativity, distributed cognition, status functions, taxonomy of economic systems, financial capitalism

**JEL classification:** B41, P00

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## 1 Introduction: Diversity of economic systems as a challenge to economics

One of the important, but currently neglected issues in economics is the classification of economic systems. Yet, this question looms large when considering cases such as the recent rise of China, which appears to be vacillating between socialist politics and Manchester capitalism. The question of classification is even politically sensitive here, as China is not yet recognized as a ‘market economy’ by important trade partners in the context of the WTO. But what are the defining features of a ‘market economy’? If China is not a market economy, what else is it (Naughton 2010; Herrmann-Pillath 2009)? After WWII, attempts at classification were mainly driven by the reigning polarity of political systems. After the demise of central planning and the collapse of the Soviet Union, the issue of classification was mainly surviving in political science, under the slogan of ‘variety of capitalisms’ (with seminal contributions such as Berger and Dore 1996). In this research, economic systems are seen as complex and fluid structures that emerge from phenomena of mutual embeddedness of politics, society and the economy. In economics, this research would be most at home in the comparative economic systems literature, however, this remains wedded to conceptual dualisms, even in empirical research, such as the dualism of individualistic and collectivistic systems or the distinction between two tracks of legal systems, the Common Law and the Continental European one (Djankov et al. 2003). Apart from this, there is the strong revival of interest into culture in economics (Guiso et al. 2006). In this case, economic systems might be seen as being deeply related to divergent tracks of civilizational development, manifesting very long-run institutional path dependences, such as distinguishing an Islamic track in the Middle East from a Western European track (Kuran 2009).

The question of classification is not only of interest for building a taxonomy of economic systems, but relates with the issue of how to assess the economic performance of single institutions which is important in policy design and advice. In this context, there is the fundamental problem that single institutions interrelate with other institutions in a complex way, such that the transfer of single institutions across different systems might not show the expected result in terms of economic performance. This applies in both the synchronic and the diachronic

dimension. That is, single institutions may connect with other institutions differentially through time, and they are embedded differentially into networks with other institutions at a certain point of time. So, a perennial question in economics is the assessment of industrial policy: There is a recurrent revival of such notions in recent decades, mostly driven by the outstanding performances of economic systems in East Asia, such as Japan in the past or China today. One result of this discussion might be that there are systemic factors which turn the performance of single institutions context-dependent, for example, relative to stage of development (Rodrik 2006; Lin 2010).

It seems that rethinking the issue of identifying and classifying economic systems requires the introduction of analytical categories which explicitly take into account the fluidity and complexity of institutional structures and their relationship with economic actions. In this paper, I argue that the central analytical notion in such an approach is ‘performativity’. I posit that economic systems are *performances* of collectives of economic actors. In other words, economic systems are creations that cannot be simply reduced to a fixed relationship between economic processes and institutional environments, such that a uniquely determined causal relationship between institutions and performance would result. Correspondingly, there is no fixed historical regularity by which best-performing institutions would ultimately establish themselves. Institutional diversity can coexist with similar levels of performance, as measured, for example, by data such as growth of GDP per capita or the Human Development Index (Herrmann-Pillath 2004).

Performativity is a concept that is borrowed from the philosophy of language and linguistics, where it relates to a class of linguistic utterances, so-called ‘speech acts’ (overview in Green 2009) which create certain social facts, in the sense of a mind-to-world direction of fit: If a group of people declares to be a ‘company’ according to certain legal prescriptions, this company comes into existence; if I give a promise to somebody, this creates an obligation to keep the promise. I argue that economic systems are performances in this sense. This can be further detailed in two ways. One is to emphasize the role of individual agency in focusing on the performative acts, which are individual expressions in the first place. That means, economic systems are *created* by the economic agents. The second is to highlight the role of language, which leads to a substantial reconsideration of this role of individual agency, as language in-

volves collective intentionality in establishing meanings, and can be seen as a medium of cognitive functions in communities of language users. If economic systems are seen as the result of performative actions, this implies that between action and performance there is always the intermediating role of language, which I approach here in the most general sense of a domain of symbolic media.

This approach connects with the recent interest into the role of ideas in shaping political and economic systems, which goes back on early contributions such as North's writings about the role of ideologies in fixing institutions (Zweynert 2011; North 1981, 1990). Clearly, ideology conjoined with power is a most straightforward ideational determinant of economic systems, sometimes in a comprehensive way, such as in establishing socialist economic systems, sometimes in a partial way, such as in shaping lawmakers' decisions. However, the notion of performativity can also grasp the more subtle influence of culture on the emergence of economic systems, which can be intermediated through networks of interactions among agents, such as interactions between business and government. Thus, it is easy to include the aforementioned cultural analysis of economic systems into my approach. This view connects with recent efforts to undergird the economic theory of institutions with cognitive science (North 2005), but differs in one important respect: The existing approaches do not emphasize the creative action that establishes performativity, but simply see cognitive structures as ways to describe the world. That means, in the terminology of the philosophy of language, they focus on the assertive mode of symbol systems, and neglect the performative function, even while claiming that these determine perceptions of the world.

In this paper I aim at setting up a general conceptual framework for using the concept of performativity in order to analyze economic systems, and I offer an exemplary analysis of three institutions that seem to be central in one of the recent varieties of capitalism, i.e. the Anglosaxon vintage since the 1980s: The transition to International Financial Reporting Standards, the implementation of new managerial incentive systems since the 1980s, and the reinforcement and the extension of the IPR system. These three institutions, among others, play a defining role in the so-called Anglosaxon model of capitalism (often confronted with the so-called 'Rhenish' model). Some of them have become objects of criticism after the financial crisis of 2008, which in the eyes of some observers heralded the advent of a new stage in the

evolution of modern capitalism. I attempt to demonstrate that those three institutions are performative in the strict sense.

My notion of performativity goes back on two recent theoretical developments. One is specific and relates to the interest into the performativity of economics as a science (Callon 2007, MacKenzie 2006, 2007). The other is generic and refers to the performativity of institutions, building on the concept of institution which has been proposed by the philosopher John Searle (1995, 2005, 2010). I connect the two perspectives by drawing on one specific economic theory of institutions which has been influential in the ‘varieties of capitalism’ literature, i.e. Aoki’s (2001, 2007, 2011) approach to substantive institutions. In this approach, public representations play a central role which compress information in complex economic interactions, and thereby induce conformity of certain behaviors and expectations with certain institutions. Public representations include linguistic entities, i.e. words and propositions whose meaning as usage is shared in a community of users. For example, ‘intellectual property’ is concept and hence a linguistic entity that relates to nothing in the physical world, but drove the emergence of IPR institutions over the past three centuries. In these institutions, linguistic descriptions and definitions of IPR play a central role in establishing the performativity of IPR related linguistic expressions.

In developing this approach, I propose to introduce an interesting aspect of reflexivity into the analysis: The production and use of ideas is an institutional phenomenon of its own, such that the Aoki framework can also applied on this level. For example, ideas are produced by scholars who work in an institutional environment of academia. These institutions differ, but also connect with the institutions on which the ideas exert an impact. For example, the creation and dissemination of ideas about IPR is governed by a different institutional framework than the use of IPR in the economy. These institutions are in turn influenced by certain ideas, such as the ideas that underlie the distinction between ‘the economy’ and other societal domains, such as academia.

Pulling all these strands of thought together, I end up with a specific proposal how to lay the foundations of a new taxonomy of economic systems, yet leaving the task to elaborate on a full taxonomy for future work: I argue that strongly performative institutions are the defining



features of different economic systems, compared with other kinds of institutions that are mostly determined functionally, that is via their contribution to socio-technological aspects, for example in the sense of solutions to problems of informational asymmetry in market exchange. This approach follows Searle's distinction between regulatory and constitutive institutions, where the former refer to pre-existing social actions (such as institutions governing the exchange of fish on a fish market) and the latter create entirely new capacities for action (such as establishing a publicly listed company). I argue that constitutive institutions are strongly performative, and that these institutions can serve as criteria to classify economic systems in taxonomic terms.

The paper unfolds its argument in three steps. In section two, I develop the theory of performativity in relation with the Aoki theory of institutions. In section three I present the three case studies. Section four explores the consequences for the general theory of economic systems, Section five concludes.

## 2 Performativity of institutions: The basic framework

The notion of performativity has been mainly used in the context of investigating into the performativity of economics. What is of special interest in our context is the so-called Barnesian performativity: Certain elements of economic theory turn performative if they influence the behavior of agents in a way such that their behavior converges with the predictions of the theory. The now classical example is the Black Scholes theorem in pricing options, which was used to create analytical tools for financial traders who applied the theorem to fix their expectations about future values of options, thus resulting into market actions which over a certain period of time led to improved econometric tests of the original theorem (MacKenzie 2007).

This use of performativity originated in the tradition of Social Studies on Science, and therefore relates with broader perspectives on the performativity of economics in the context of sociology (Callon 2007; overview in Preda 2008). In this perspective, we can expand the scope of analysis beyond economics in the narrow sense and refer to conceptualizations of the economy in the general sense. So, for example, what is being considered as ‘the economy’ is not only influenced by economics as a science, but by a manifold of political beliefs, social values and cultural traditions. Çalışkan and Callon (2009, 2010) distinguish between ‘marketization’ and ‘economization’: ‘Marketization’ refers to the use of certain institutions in order to create and maintain market interactions, such as the aforementioned options and the option pricing theory plus the artefacts created on its basis, ‘economization’ refers to the intentional determination of the scope of ‘the economy’ in a given society. For example, academia might be regarded as a domain that differs from the economy as far as research is concerned, but the job market for scientists is a part of the economy, and there are specific institutions (such as the markets organized at the annual AEA meetings) that enable and organize market transactions.

I relate this strand of research on performativity with Searle’s theory of institutions. Searle himself has recently moved towards a stronger emphasis on performativity in using his concept of ‘declarations’ (Searle 2010). A promise is a declaration. So, Searle argues that institutions ground in a declarative mode which brings the social facts into existence which are the institutions. In this analysis, Searle puts the concept of status function into the center. A status

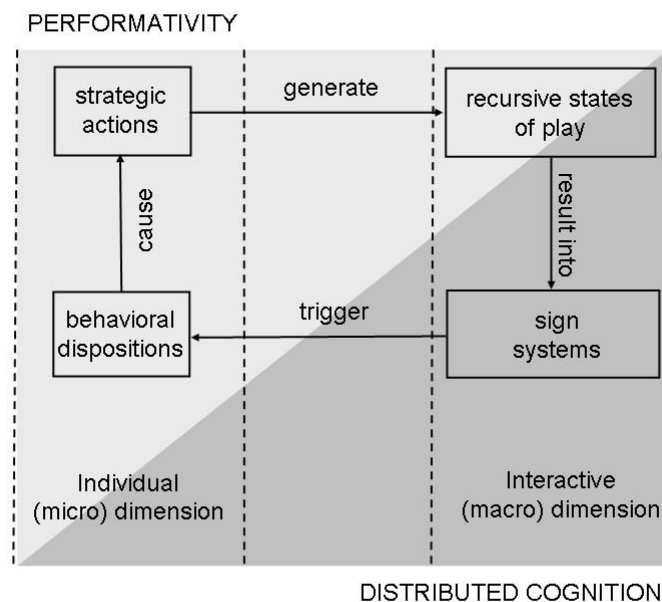
function is a proposition which assigns a function to a certain fact in another context, such that a set of commitments to action is created ('desire-independent reasons for action'). This assignment is linguistically mediated and therefore grounds in collective intentionality. Thus, institutions share important properties with language, especially in the sense that they create meanings for purposive action which cannot be established by mere individual action. The standard example is money: Money does not exist as a physical fact, but comes into existence by declaration; this declaration is impossible to be made on an individual level by unilateral action, but requires collective recognition and acceptance of the institution.

Searle's approach can be easily connected with the aforementioned literature on performativity because it offers a more general and encompassing framework. For example, a capital market is a set of institutions which create social facts that do not exist independently from those institutions. Then, a certain set of physical entities and their correlated behavioral patterns are designated as being certain social facts which are described by those institutions. A 'stock' is an entity that relates with certain powers of agents that find systematic expression in behavior. Accordingly, we can include the special aspect of economics contributing to the specific linguistic operations that are involved in the manifestations of the institution. Beyond the narrow notion of the performativity of economic theories, we can refer Searle's approach to a more general cognitive process by which via status functions linguistic operations on metaphors take place, through which transformations of meanings are actualized (such as seeing a paper slip as money); metaphors in turn relate with the activation of behavioral propensities on part of the actors who use them (Herrmann-Pillath 2010). Thus, for example, capital markets are viewed by the different actors through the lenses of fundamental metaphors which relate with emotional determinants of their behavior; these metaphors also crystallize in the formalization of institutions, such as those related with handling 'risk' (Zaloom 2003; Young 2001).

Now, the concept of performativity can be related to Aoki's theory of institutions (Aoki 2001, 2007, 2011; cf. Herrmann-Pillath 2012). This is because Aoki highlights the role of public representations in the causal chain between institutions and behavior. He approaches institutions as being dynamic states in which strategic actions of individuals interact and result into repeated action patterns which include the use of certain public representations, that is, words, symbols, rituals etc. Recently, similar ideas have been explored by game theorists who ana-

lyze the role of signals in determining the salience of certain behaviors in equilibrium selection (Skyrms 2010, Sugden 2011). Public representations compress information about the complex interactions in a way such that the behavior of agents is channelled towards the reproduction of these states. So, for example, a certain symbol may signal authority relations, which are seen as being legitimate, such that costs of enforcement of the institution are reduced, which favours its reproduction through time. This concept of information compression can be seen as a specific expression of general patterns of distributed cognition in social interactions: Distributed cognition refers to the phenomenon that cognitive functions can include mechanisms external to the individual, such as technical enhancements or social divisions of tasks (going back on seminal contributions such as Clark and Chalmers 1998 or Hutchins 1995). Collectively used linguistic patterns enable distributed cognition, insofar as the use of certain symbols enables certain action capabilities (for example, numbers enable computations) and determine certain perceptions and the corresponding actions (for example, shared problem solving heuristics, often called routines, in professional communities or organizations) (Hutchins 2005, Clark 2011; D’Adderio 2011).

**Figure 1: Performativity and distributed cognition in the Aoki model of substantive institutions (Herrmann-Pillath 2012)**



So, as depicted in figure 1, we end up with a framework that adds the two concepts of ‘performativity’ and ‘distributed cognition’ to the original Aoki model. The original model is slightly modified: I consider sets of strategic actions, which are not necessarily produced intentionally, but are entangled in strategic interdependencies. These interdependencies result into states which are reproduced by recurrent actions. The states involve or relate to sign systems, that is, sets of symbolic media which are internally organized in semantic spaces. Signs trigger certain behavioral dispositions to act, apart from the direct impact of action feedbacks (for example, a physical threat can be accompanied by symbolic displays of physical prowess). The dispositions channel strategic actions into a certain direction, in particular pre-adapting the action to the states being reproduced by them.

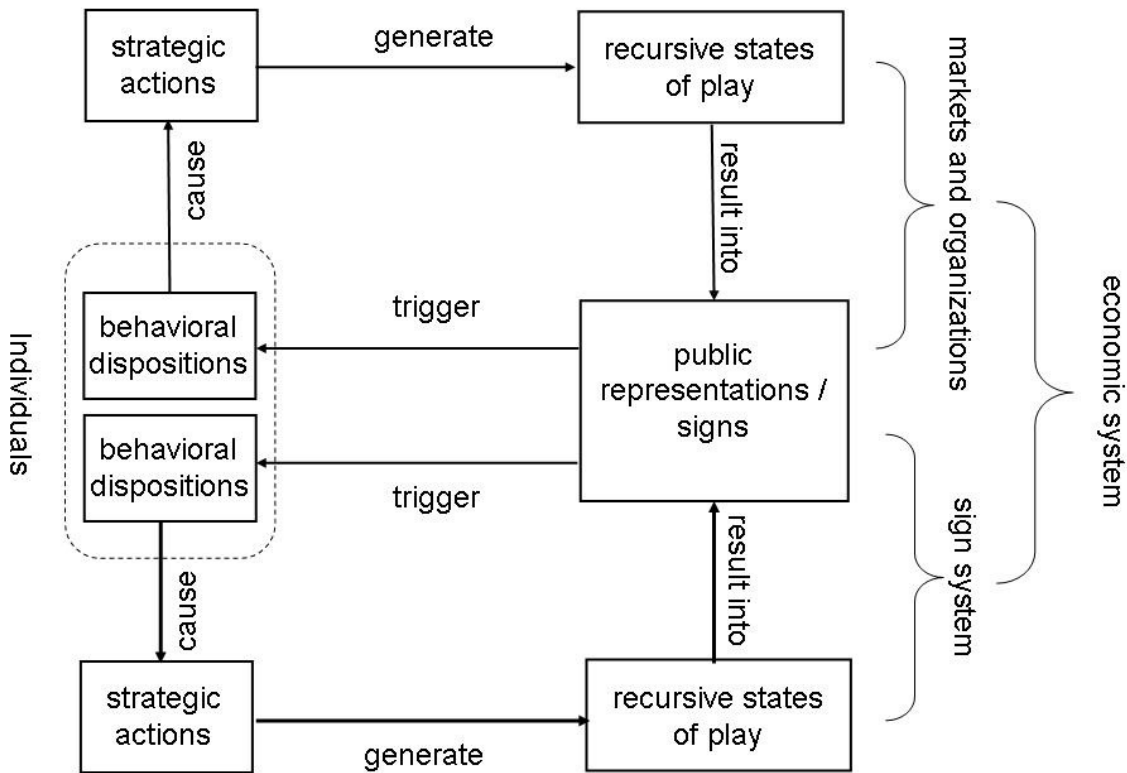
Then, ‘distributed cognition’ refers to the channeling of individual behavior via the impact of sign systems, such that the cognitive load for individuals is reduced by means of collective resources, and ‘performativity’ refers the pre-adapted actions of individuals which result from this channeling, such that the individual strategic actions converge with the conditions of realizing the recurrent states of interactions. For example, consider gender discrimination (which relates my argument also with Butler’s 2010 much-cited uses of the concept of performativity): Gender discrimination may take different shapes across formal institutions, informal norms and conventions, and goes hand in hand with a large set of signals and metaphors, that channel the behavior of individuals. As a result, complexities of gender interaction may be reduced, and the resulting choices by different individuals will contribute to the maintainance of the prevailing patterns of gender discrimination.

Looking at the notion of sign systems in more detail, however, we need to recognize that these systems are not only endogenous to the social interaction. Many signs and sign systems are created in other domains of interaction. For example, sign systems that determine the interaction between the genders in the institutions of marriage are partly determined by religious values. These values are not endogenous to the interaction, but are created in the domain of religion. This example shows that these domains manifest institutional phenomena on their own.

Therefore, I propose a dual analysis of institutions: Sign systems play a central role in the emergence and the creation of institutions; sign systems are institutional phenomena in turn. So, we can look both at the endogenous and the exogenous determinants of the institutions. Ultimately, this dual view would be ideally unified into an approach that treats the sign systems as being endogenous to the larger integrated institutional setting.

In simplifying figure 1, I depict this approach in figure two. The signs are the junctures across the two modes in the systems of transactions that is made up of markets and organizations, and the sign system. In the former, we look at the workings of particular institutions, such as governance patterns, and how they are influenced by the existence of certain signs. In the sign system, we look at the processes that determine the emergence of signs independently from this system of economic transactions. So, for example, the way how 'labour' was perceived in the 19th century was certainly influenced strongly by Karl Marx, but the institutions governing the emergence of his ideas were not the ones prevailing in the labour market. Yet, from another point of view we could envisage an integration of the two systems into an integrated economic system in which we would analyze the emergence and diffusion of economic ideas in terms of an economics of economics (such as analyzing the dynamics of the publishing industry, academic labour markets and project funding etc.). This approach makes clear why we would need to approach economic systems as conjunctions of institutions and ideas, in a Northian fashion.

**Figure 2: Dual view of institutions**



The other bridge between the two modes is indicated by the broken box around ‘behavioral dispositions’. Basically, there is no presumption regarding the identity of the agents, so they can be the same one or different ones. Karl Marx was not a worker, and professors are not managers. However, this separation of roles does not hold true in important cases for our investigation. Thus, the literature on performativity has already exposed the central role of academic entrepreneurship in the diffusion of the options pricing model. Another instance is the role of economics in educating professionals. In these cases, the individuals who act are identical across the modes, though might play different roles during their life cycle. For example, a researcher might adopt certain ideas, and later implements them in an entrepreneurial career.

It is important to emphasize nevertheless, that the meaning of the signs can differ across the modes. Actually, this meaning is not even homogenous within one mode, a point already emphasized by Aoki in distinction with other approaches to so-called ‘shared mental models’

(Denzau and North 1994). What is being shared are the signs, but not their meaning. Same signs can be interpreted differently by different individuals, but nevertheless support the coordination of actions. So, for example, symbols of male dominance might stabilize gender discrimination, but would not necessarily be interpreted in the same way across the genders. This holds across the modes as well. So, the meaning of signs generated in academia might be different from the meaning inhering their use in certain legal texts of public receptions of the ideas.

This discussion also points at a neglected aspect in the Searlian analysis of institutions. Searle seems to take it for granted that collective intentionality refers to the communities for which the institutions are binding. However, in the real world those communities might only be a subgroup of the entire society in which the institutions apply. For example, institutions governing the financial markets mainly refer to the actors on the financial markets, and not, say, to workers in the mining industry directly. But the latter may be affected by the effects of those institutions, e.g. in M&As in the mining industry. Yet, they do not play a role in performing the institutions. This question of the identification of the relevant communities of interaction and sign use relates with the issue of power distribution in society. In this sense, group with limited inclusiveness can nevertheless impose certain sign uses on society at large, if only via the indirect effects on other activities, and furthermore, within a community power relations may give an especially strong role to certain members in shaping the sign use. This role of structures of authority and representation has been emphasized in Tuomela's (1995, 2009) approach to collective intentionality and group formation, which manifests a number of close affinities with Searle's approach (Tuomela 2011). For example, in some expressions of religious beliefs clericalization plays an important role, such that religious experts obtain a special authority in determining the meaning and the use of certain symbols. Yet, these meanings often do not fully converge with the meanings in popular expressions of religion, even resulting into conflicts.

Finally, the conceptual bridge between distributed cognition and performativity is the notion of identity of actors. Sign uses and behavioral dispositions are defining features of individual identities, as being shared in a population of actors, in the sense of publicly displayed expressions which are recognized by others. This establishes a connection with the recently flourish-



ing economic literature on identity. For example, Akerlof and Kranton (2000) had argued that the gender division of labour is maintained via certain perceptions of gender identity, which makes it costly even for the group that suffers from discrimination to change their behavior.

Why is the modified Aoki model, and in particular, the concept of performativity, important for the analysis of economic systems? There is one general sense in which economic systems in their entirety may be seen as being based on performative action. This relates with the indeterminacy of the evolutionary selection of institutions. For one, intentional institutional design always operates with limited information about the consequences of certain institutions. This applies both for political action as for scientific analysis. Therefore, unintended consequences of institutional design loom large in institutional selection, which implies, however, that there is always large leeway for performativity to play its role. This effect is reinforced by the role of path-dependencies in institutional change, which affects the differential performance in terms of measures such as growth, efficiency and so forth.

The other important reason for performativity to hold lies in the multidimensionality of economic actions, which applies both to the domain of economic actions and for interfaces with other domains. For example, the labour market institutions affect the wage rate, which is at the same time an intra-organizational incentive scheme. Further, conflicts over wages relate with distributional conflicts which involve the political domain. A single institutional determinant of wage negotiations may therefore have multiple effects in different dimensions. This aspect is emphasized in the varieties of capitalism literature in political science, for example, when analyzing complex institutions such as the German co-determination and their embeddedness (Streeck 2010). However, there is also an economic version of this argument which has been elaborated on already by Aoki (2001, 2007), that is, the complementarity of institutions. If there are complementarities between institutions, it is impossible to evaluate the performance of single institutions, or to expect similar performance in different institutional contexts. If complementarities are pervasive, it is only possible to compare the performance of entire clusters of institutions, or, just economic systems (Aoki 1996). For example, co-determination would manifest entirely different effects once it would be transferred to the US, without implementing concomitant changes of other institutions, such as in the capital market.

This scope for performativity is also directly determined by the state of economic science. Here, there is a set of still unresolved (and probably un-solvable) issues which leave leeway for different theoretical choices which then feedback on performative actions. One peculiar feature of economics is the fact that there are explicit theoretical junctures at which performative action comes into play. Examples include the Lucas critique of structural economic models or the Sonnenschein-Mantel-Debreu theorem on demand functions.

So, in general we can say that complexity and indeterminacy define the scope for performative action. If action is performative in the true sense, however, there must be an interaction between sign systems and actions via the stabilization of states, which in turn are functional in terms of performance. This is particularly true if we focus on the role of ideas, such as economic theories, as in the original notion of performativity. Referring to the wage rate again, the question is whether the diffusion of certain ideas about incentive systems may shift behavioral patterns in a way such that the incentivization effects also change, resulting into performative effects on economic performance. This is important to emphasize because I do not claim that all economic actions are performative. There are different degrees of performativity, and there is a broad range of actions that is not performative at all. Further, there is the possibility of counter-performativity, that is, action that fails to result into recurrently reproducing states.

In the next section, I will analyze three examples of institutions for which I claim that they are strongly performative, and that they determine the nature of an economic system, which has been recently dubbed ‘financial capitalism’.

### 3 Case studies of institutional performativity: Financial capitalism

In sociological research on political economy, the Anglosaxon and US system after the ideological shifts of the 1980s has been characterized as manifesting the process of ‘financialization’ (e.g. Krippner 2005). This term designates the emergence of ‘financial capitalism’, which features salient roles of financial institutions and activities (also in the domain of the non-financial sectors) in the economic process and corresponding norms and standards. This is also epitomized in shifting power relations between different groups of actors and the corresponding perceptions of actor’s identities: The ‘investment banker’ has displaced the ‘captain of industry’ as the personification of capitalism. For example, capital market based finance is a defining feature of financial capitalism, as opposed to bank-based finance. I look at a set of institutions that are characteristic for this system and analyse why and how those institutions are performative. These institutions are:

- The evolving prescriptions of accounting standards;
- The practices of managerial compensation;
- The institutions of intellectual property rights.

I claim that these institutions manifest performativity in the two senses of performativity of economic theory and performativity of institutions. This is most straightforward to demonstrate by means of identifying the corresponding Searlian status functions and the groups which maintain the collective intentionality underlying these status functions. In arguing this way, we also see how the inclusiveness of these groups shapes the concrete trajectory of institutional change.

### 3.1 International Financial Reporting Standards

The seemingly technical issues of accounting systems has been recently scrutinized in much detail by political scientists. I rely on one especially comprehensive work by Perry and Noelke (2006), who argue that the transition to the IFRS standards is the expression of fundamental shifts in the structure and operations of the economic systems after the 1980s. In this account, two aspects are of particular relevance for the analysis of performativity: Firstly, this transition has been driven by economic theory, and secondly, there is a very close interaction between the new institutions and the way how actors' identities are expressed and perceived in the system.

The transition has been triggered by the perceived need to improve the efficiency and efficacy of markets by enabling economic actors to perceive the opportunity costs of asset use more objectively. This is epitomized in the principle of 'Fair Value Accounting' which is directly opposed to the traditional approach to historical cost accounting. The fair value is seen as a value that prevails at current market valuation. The main benefits of this perspective is said to be that it makes the true costs of managerial decisions explicit, thus also enabling the implementation of improved incentive and monitoring systems.

However, as the public debate over these accounting principles made clear, the principles are by no means neutral to the identities of actors. The IFRS clearly adopt the perspective of the (financial) investor who allocates funds across different uses. This is not necessarily the perspective of other stakeholders, but it is not even necessarily the perspective of owners, which is the reason why many family businesses in Germany have vehemently opposed certain elements of the IFRS. In the FVA view, the owner of a family business should also adopt the opportunity cost perspective when evaluating the allocation of her wealth over different projects, hence prefer FVA as a basis for decisions. However, many family business leaders argue that this would expose a multi-generation project to the vagaries and short-sightedness of markets and their valuations. They see themselves as stewards of these projects, and not simply as individual owners of financial assets (for a lively description of this attitude, see *The Economist*, April 14, 2012, p. 26ff.). So, we see that the IFRS do not only incorporate certain principles of valuation, but also fundamental assumptions about the nature of agency in the economic system.

It is important to realize that in spite of the seemingly clear economic rationale for market valuation, there are fundamental problems with this approach, which relate to two issues in economic theory which are still very open in theoretical terms. The first is the question of the efficiency of markets. FVA is seen as an instrument to enhance the efficiency of markets in creating better transparency and objectivity of valuation, but at the same time the assumption is taken for granted that the markets themselves are efficient in processing this information. This assumption has been challenged for long by the behavioral finance literature, for both empirical and theoretical reasons. The second is the problem of aggregation and of the theoretical foundations for the extensions of the FVA to notions such as intangible capital. These neglect the fundamental issues raised in the Cambridge capital controversy that there is no theoretically consistent way to aggregate over capital because the quantity of capital is not independent from its price, i.e. the interest rate.

Both open issues and the resulting conceptual ambiguities imply that there is much scope for performativity in adopting and applying certain standards of valuation. This holds already for the process of valuation as such. For example, whether and at which valuation certain goodwill aspects are included into the balance sheet or not depends on adopting the FVA or alternative approaches to accounting. Once this is adopted, however, agents will also focus on creating and maintaining these assets, thus contributing to the reification in the corresponding actions. Thus we can analyze the application of the FVA in exactly the same terms as Searle proposes to analyse the free-standing corporation. In adopting FVA, actors agree to assign a certain function to certain aspects of behavior in the marketplace, which focus on the management of assets which can be mapped into a financial number. That means, we can interpret the IFRS as a set of status functions that create the entities, namely the ‘assets’, which are then the object of managerial decisions. For this performative action, economic theory plays a central role, but also more fundamental conceptual metaphors such as the notion of ‘risk’ (Young 2001).

Interestingly, political scientists emphasize that this shift also implies a shift in power relations in the economy, thus directly demonstrating the underlying deontologies. In particular, this is the shift from managers to financial sector professionals. The IFRS claim to adopt the position of the shareholders, i.e. the owners. But as is evident from the deviant view of family

businesses, this is equation is not warranted. In fact, the alleged shareholder perspective refers to the viewpoint of professional investors, i.e. financial sector institutions. So, the IFRS imply a shift in the reference of the underlying power creation operator, in colloquial from Main Street to Wall Street.

The performativity of the accounting standards finds expression in two facts. The first jumped to the eye during the 2008 financial crisis, when the FVA principle directly affected the balance sheets of financial businesses, because the different financial assets, in particular the derivatives were evaluated according to the market value. Thus, the FVA directly impacted on the perception of economic reality and the corresponding behavior. At the same time, this means that behavior is focused on adapting to these perceptions, which implies a stronger market orientation, thus influencing also other areas of managerial decision making, in particular the measurement of performance and incentive systems, the topic of the next section. This is most visible in the fact that financialization also changed the nature and content of strategic decision making in companies, which is much more determined by financial performance standards, also in the more specific sense of the returns to financial assets (emphasized in the financialization literature, see Krippner 2005).

To summarize, I suggest that the introduction and application of IFRS is strictly performative in the sense that the principles of asset valuation are status functions which constitute certain social facts, such the entities 'assets'. Further, the status functions relate with sets of power creation operators, which shift the relative weights of different groups in the complex decision making process of the capital markets, in favour of the financial sector and actors responsible for financial decision making (such as CFOs). This is one of the defining features of the economic system of 'financial capitalism'.

### **3.2 Managerial incentive systems**

The transition to FVA was also seen as contributing to the improvement of the design of managerial incentive systems. One of the remarkable developments since the 1980s was the diffusion of managerial incentive systems which included an stock options component. The idea was that remuneration in terms of stock options would help to align managerial motiva-

tion with the perspective of the owners, i.e. the shareholders. Again, this conflation between owners and shareholders may not fully hold in this case, as managers would be mostly interested in realizing gains in the value of stocks by exercising their option rights, i.e. would not necessarily keep their owner position precisely when they are very successful.

This idea was closely related to the rise of managerial economics in management science. Managerial economics builds on central tenets of economic science, especially in the Williamsonian breed, that is, emphasizing the role of opportunism and bounded rationality. In this view, the role of intrinsic motivation is downplayed in the analysis of human behavior, and the role of organizations is seen as being complex institutional devices to align incentive systems with certain goals of the owners who systematically take heed of opportunism in the organization.

As has been analyzed in a influential paper by Ghoshal (2005), these theoretical approaches gained wide currency at B-schools in the United States, in particular. Many generations of MBA graduates left the schools after being impregnated with the theoretical models from economics, game theory and so forth. Now, Ghoshal argued that this education actually reinforced the behavior that is described and analyzed in the models. For this, it is not necessary to assume directly that this behavior is a natural given. What is essential is that the majority of actors would expect this behavior to be natural in the population in which they interact. Even if I am a good guy, I expect most others to be bad guys. In other words, the education changed the common knowledge underlying all strategic interactions in business. Especially, all observed instances of opportunism can be perceived as confirmations of the basic theory. Then, actors will actually adopt the strategies and tools that are recommended by the very same kind of analysis. A case in point was the transition to stock options schemes, which followed from the prevailing economic theory of property rights. This introduction is not neutral to the behavior of actors: It reinforces precisely those attitudes which are targetted by these instruments. Interestingly, there is a direct causal feedback between these aspects of incentive systems and the standards of asset valuation: The infamous Enron case of 2001 was triggered by the new business opportunities that had been created by the transition to the mark-to-market principles in the United States and by the congruent changes of the managerial incentive systems (Akerlof and Shiller 2009: 33ff.).

The feedback between incentive systems and behavior is well demonstrated in behavioral economics with reference to the relationship between intrinsic and extrinsic motivation (Frey 1997). There is a long tradition, beginning with early research on altruism, that the imposition of extrinsic incentive systems may actually change the behavior of actors in precisely that direction, thus crowding out intrinsic motivation (Deci et al. 1999). The same observation can be made with regard to monetary incentive systems in companies, provided that there are potential sources of intrinsic motivation: In this case, what matters is also how far the incentivized activities relate to expectations about the behavior in a group of actors (Sliwka 2007). The causal effects behind these complications are complex in turn, and mostly related to the fact that incentive systems do not only impact on the perceptions of expected rewards, but also influence the framing of the situation, in particular with reference to the perception of the connection between the task and personal needs different from the reward offered by the extrinsic incentive (e.g. Lindenberg 2001), and with regard to the implied assignment of control rights between principals and agents (e.g. James 2005; Falk and Kosfeld 2006).

I claim that the ambiguities of incentive systems indicate another instance of performativity. In this case, performativity applies on two levels. The first is the direct impact of economic theory on the behavior of actors. Actors who learn a certain theory and then meet with environments where the theory is implemented, will adopt the corresponding behavioral expectations and adapt their own behavior accordingly. The second level is the impact of theory on organizational and institutional design. As this is a part of the actors' environment, we observe a close interaction between the two levels. A certain design will trigger behavioral responses by the actors which actually reinforce the perceived need for this design, as posited by Ghoshal.

This interaction is strongly performative with reference to economic theory and general conceptualizations of the economy. The diffusion of certain ideas leads to behavioral adaptations which makes behavior more consistent with the theory. It is interesting to notice that in this case, the arguments against equating performativity with self-fulfilling prophecies hold. The argument on performativity is based on one assumption that is not part of the theory in question, namely that actors are not opportunistic by nature, whereas the theory itself takes opportunism as a basic premise. In other words, both opportunism and the incentivized behavior are



two sides of the same performative coin. Therefore, the actual behavioral effects of performativity may not correspond with the theory, if real mechanisms underlying human motivation are more complex, as far as their non-performative foundations are concerned. Accordingly, counterperformativity is possible, in different shapes. Thus, for example, the introduction of incentive systems does not lead to the expected improvements of performance, precisely because intrinsic motivation is reduced, which contradicts the economic theory, operating in a performative way, nevertheless.

This analysis shows that performativity can also apply for the very notion of the agent itself, because performative actions determine their identities. Agents are not opportunistic by nature, but are constituted by status functions which declare them to be opportunistic. Since opportunism is also a real disposition in human agents, we can say that performative action triggers this disposition, thus channeling behavior into one direction in which behavioral expectations about opportunism are confirmed. Thus, in terms of the Aoki model, economic systems are also shaped by recurrent states in the determination of actors' identities (Herrmann-Pillath 2012); this matches with theoretical models (Sliwka 2007) which show that the incentive systems are signals that confer information about the perceived frequencies of certain behaviors in a social group and of the underlying social norms. This view can be enlarged to the analysis of historical 'types' of agents which can be seen as pivotal role models in understanding the economic system in which the act (for an interesting case in point, see the analysis of the 'investor' as a type in Preda 2005).

### **3.3 Intellectual property rights**

My third example for performativity relates with the first one. This is the increasing importance of intellectual property in the recent decades. Clearly, this is partly a response to the diffusion of certain asset valuation principles. The more those methods recognize intellectual capital, the more companies strive to create and protect it (for a related interpretation, see Coriat and Weinstein 2005). This tendency is accentuated by any attempts to expand the notion of capital in constructing balance sheets.

This is not the place to discuss IPR in detail. I only want to highlight one essential fact, namely that neither economic theory nor empirical research lend full support to the (economic) folk explanation why IPR should exist (for an extensive overview, see Boldrin and Levine 2008). This explanation argues that without IPR, incentives for innovation will be diluted. Clearly, this argument falls in line with the previous ones about incentive systems in general. The assumption is that inventors or creators in general will increase their productivity if the economic gains from their activity can be fully appropriated.

This assumption is not supported by the empirical evidence (e.g. Moser 2005). There have been many industries in the course of economic history which emerged and expanded without IPR protection (such as most recently the software industry until the patent regime was changed in the US, which had only received the much weaker protection by copyright law previously). The demand for IPR protection emerged only after a period of maturation, which suggests that IPR indeed play a role in safeguarding the economic interests of incumbents, but does not prove that this also applies for the creative process. Further, from the theoretical point of view there is a large range of other means by which creators can reap economic advantages from their activity. It is not clear whether additional means such as IPR are necessary to achieve a socially optimal level of innovation. The latter is difficult to assess anyway because there is always the trade off between invention and diffusion: Less IPR protection might imply less invention, but also leads to more rapid diffusion. So, almost paradoxically one can say that perhaps the imperfections of historical patent regimes may have actually represented approximations to the optimal regime (Mokyr 2009).

In our context, we do not need to take position. What is of interest is the conclusion that IPR are performative in the strong sense, precisely because the trade-off between invention and diffusion (which only together define innovation) does not determine a unique institutional model. The possibility of alternative economic systems has been highlighted in the context of the digital economy with special emphasis (Hartley 2009). The starting point is the observation that all inventive activity can be interpreted both as an individual and as a collective phenomenon. This is because the minimum unit of innovation is always a producer and a user: The user is crucial for the acceptance and diffusion of an invention. Beyond this, innovation

can be interpreted as a collective process of tinkering and recombination of ideas which does not match with the heroic model of the standard IPR paradigm (Ziman 2000).

Therefore, we have two different conceptualizations of the relationship between creation and market process. In the standard model, firms are originators of innovations which are then adopted in user networks. In the alternative model, innovations originate in the network, and firms are repositories of knowledge and mediate the production process. Clearly, the implications for the IPR system would be far-reaching, as the second model would only suggest the need for a very limited and targeted system, which would actually come more close to the imperfect systems of the past than to the model currently being propagated via international institutions such as the TRIPS regime in the WTO process.

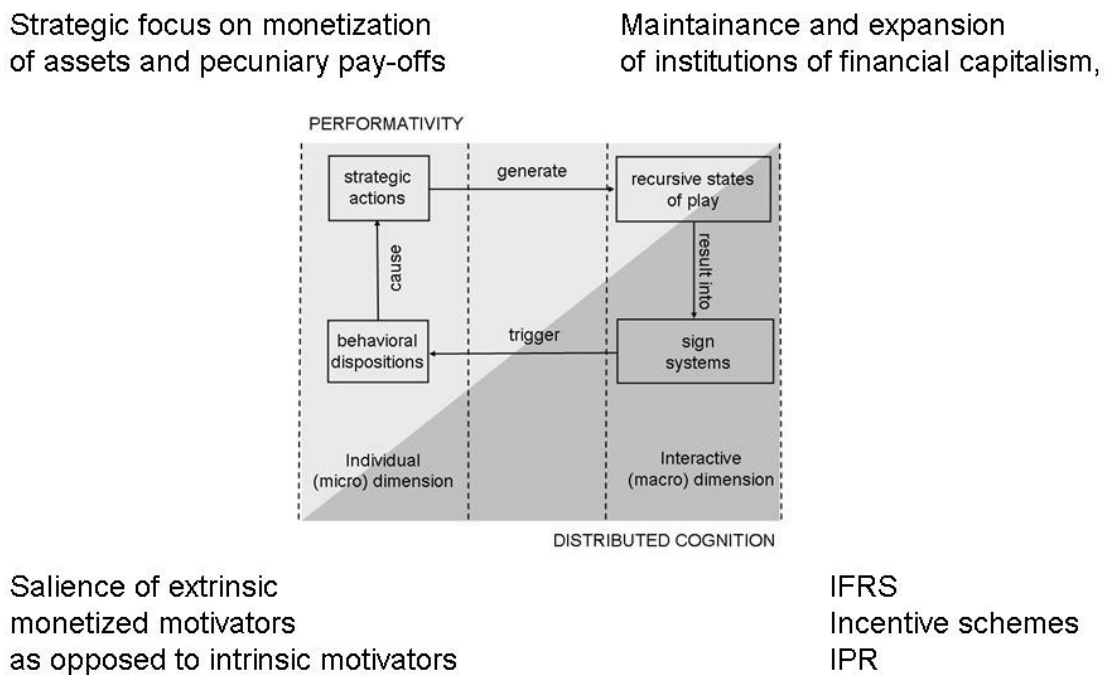
In most general terms, we can say that the IPR system is a set of status functions which define the economic role of 'knowledge' in a particular way. There is a broad interpretive range in approaching knowledge, and therefore we cannot simply assume that there is a sort of 'institutional progress' towards one universal benchmark. For example, the transfer of patent ownership from individuals to companies was a performative act, because the actual structure of knowledge production in the firm is a complex phenomenon, and because the power distribution is at stake. So, the corresponding legal shifts in the early 20<sup>th</sup> century also established particular Searlian power creation operators which were by no means simply determined by 'objectively given' facts (see Coriat and Weinstein 2005). Similarly, the recent emergence of open innovation systems and 'prosumer' activities points towards a renewed reconsideration of these power structures (Bruns 2009).

## 4 Performativity of economic systems

### 4.1 Theoretical reprise: Financial capitalism

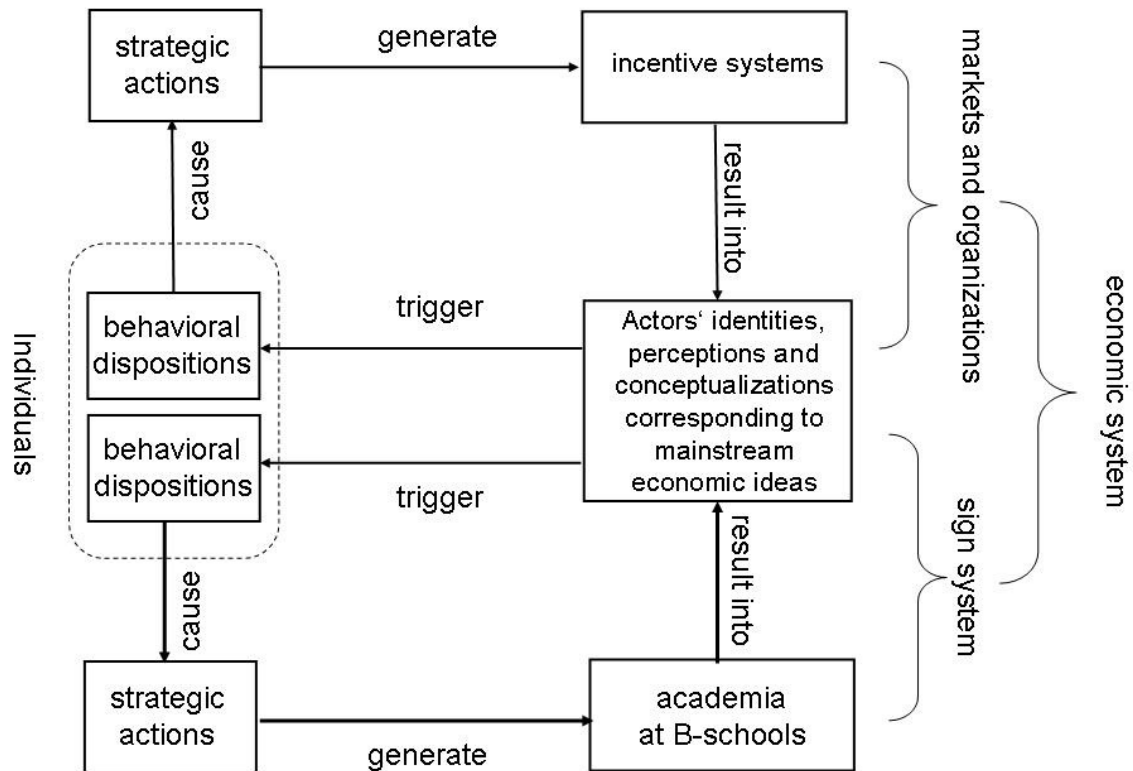
I will now condense the result of the three short case studies into one unified approach to financial capitalism which follows the modified Aoki model, and draw the consequences for the general analysis of economic systems.

**Figure 3: Performativity of financial capitalism**



Turning back to diagram 1, which is reproduced with modification in figure 3, we can say that in all three cases, a set of sign systems plays a crucial role in stabilizing a certain pattern of institutions and correlated behaviors. Patents are artificially created signs, as well as assets values resulting from the application of accounting standards and performance measures. Following Aoki, I argue that these sign systems have an information compression function that

needs to be analyzed in two directions: Firstly, the sign systems are results of the strategic interactions between the different actors in the economy: So, for example, the IFRS result from interest group politics, scholarly debates, political coordination and so forth. Secondly, the sign systems reduce the complexity of those interactions into a constrained set of signs that channel behavior of actors across the different arenas of interactions. For example, the IFRS complement the creation of certain incentive systems, and both go back on the production of pertinent concepts and ideas in academia. These incentive systems have a direct impact on behavior, because they shift cognitive and probably even affective frames for perceiving the relationship between extrinsic and intrinsic rewards. So, certain behavioral dispositions are reinforced which in turn influence the strategic actions in the different arenas. For example, failures of certain incentive systems because of opportunistic behavior, which in turn might have resulted from a weakening of intrinsic motivation, reinforce the demand for further improvements of accounting standards and tighter definition of performance measures and so forth (such as the progress of risk management institutions in the financial sector culminating in Basel III). Thus, a certain self-reinforcing tendency of mutual complementarity of institutions emerges, which is strongly backed by the fact that the different sign systems actually go back on a common interpretive frame. This common interpretive frame is provided by economic theory in the broadest meaning, i.e., encompassing the textbook versions taught at B-schools, among others. Thus, the analysis also points towards the performativity of this underlying economics.

**Figure 4: Ideas and institutions in financial capitalism**


Taking the specific example of incentive systems as discussed by Ghoshal, we can analyze this interaction in a little more detail in figure 4, which is a modified version of figure 2, just offering a brief sketch. Then, we treat certain incentive systems as institutions that are reflected in pertinent sign systems. These systems are embodied in theories and conceptual applications of the relevant parts of mainstream economic theory, which therefore can be regarded to be the relevant public representations in the sense of Aoki's (this role of mainstream theory is similar to the case of the introduction of forex options markets analyzed by McKenzie 2006). The sign systems relate the incentive systems qua institutions with another causal feedback loop that works via the institutions of academia at business schools. These institutions also refer to the same set of theories (for example, regarding the notion of an ROI on invested tuition fees, systems of ranking academic output etc.). Further, there is also an

‘economics of economics’, that is, the incentivization of certain epistemic activities: For example, given certain career patterns in academia, it is important to protect the value of acquired human capital resulting from long years of training in advanced formal skills, and thus to block the emergence of competing theories that would devalue this competitive advantage.

The two institutional feedback loops also connect via the box of behavioral dispositions. Here, we can consider different cases, depending on the specific institutional setting and the individual circumstances. For example, B-schools may adopt similar incentive systems, such that the two cycles are actually conflated. Or, we consider two different groups, professors at B-schools and executives who meet in certain arenas, such as high-level executive MBA programs. The two groups might converge to a certain habitus, hence behavioral dispositions, which reflects the respective channeling effects of the underlying shared sign systems. Hence, sign systems converge also in terms of defining certain identities of actors, that are expressed in behavioral dispositions.

## **4.2 Implications for the taxonomy of economic systems**

Thus, the summary analysis shows how three institutions which are strongly performative might define the core of ‘financial capitalism’. Thus, they can serve as a litmus test to distinguish this system taxonomically from other systems. We can generalize this observation and posit the hypothesis that the diversity of economic systems is driven precisely by those aspects and actions which manifest strong performativity. In the Searlian context, this would apply especially for the so-called constitutive rules, that is, rules that entail the creation of entirely new social facts. One of the standard examples offered by Searle, the free-standing corporation, is an excellent illustration if we relate it to historical observations. One intriguing example is the comparison between China and Western Europe, and the question whether and when China might have manifested the features of a ‘capitalist’ economic system (Pomeranz 2000). This is not the place to delve into the details, but there is one part of the story that is directly relevant for my theoretical approach. This is the question whether markets and their endogenously created institutions are a defining feature of capitalism. In the Searlian view,

markets qua institutions are not necessarily constitutive, but regulatory, once we regard the human penchant for exchange and the related social practices as a form of behavior which takes place independently from specific institutional settings. In fact, the comparative scholarship about China only belatedly recognized the ubiquity of markets in China, even leaving a strong impact on the cultural geography of the country. However, this observation rendered earlier explanations of the failure of China to industrialize obsolete. Quite to the opposite, scholars (beginning with Elvin 1973) started to argue that markets were simply too well developed in China to make the creation of important non-market institutions, such as the firm, an economically necessary choice.

If we look at the institutions of markets in China, we find many institutions that have similar complements in other regions of the world, such as certain trading institutions (so, Arrighi 2007 counts Imperial China as a ‘Smithian Economy’). These institutions are regulatory, in the Searlian sense that they contribute to the further evolution of an pre-existing practice. In my account, these institutions would not be performative in the strong sense, though possibly in the weak sense. That means, these institutions do not systematically alter the behavior of actors in way that this converges with the institution. This is the main reason why the existence of comprehensive markets or full-scale marketization does not suffice to qualify the economic system of China as ‘capitalist’ (though, the classification as ‘market economy’ is possible, which would distinguish China from other systems such as a feudalist one). This is only possible if we look at strongly performative institutions. Then, following a general argument proposed by Kuran (2009), one of the unique features of Western European capitalism was the creation of the corporation as a fictitious entity to which actors ascribe certain rights and duties which were previously only ascribed to natural persons. To recognize corporations and to act under the presumption that they exist, is therefore a defining feature of modern capitalism.

So, coming back to the initial question of classifying economic systems, I conclude that the litmus test for identifying an economic system is the existence of particular institutions that are strongly performative, in distinction to other systems with different strongly performative institutions. This applies on different levels of generality. Thus, in our example, the corporation may be regarded as a defining feature of capitalism as compared to other economic sys-



tems. Within the set of capitalist economic systems, we might be able to identify subsets which display specific performative institutions. We have studied three of those institutions which might be seen as central to the Anglosaxon variant of capitalism, culminating into the system of ‘financial capitalism’.

There is one simple argument why this approach seems to be promising for building a taxonomy of economic systems. Consider certain institutions that manifest a direct relationship between behavior and the solution of certain institution-independent problems, such as reducing information asymmetries between seller and buyer for certain goods. Then we can safely assume that these institutions will disseminate easily across different economic systems. This implies, however, that they cannot be used for classificatory purposes, because they cannot be persistent distinctive features between the systems. This is different for strongly performative institutions. In their case, the connection between performativity and performance is indirect and often depends on the embeddedness into the broader institutional context. Typically, performance measures would only be applicable on the aggregate level, i.e. the systemic one (such as claiming the superiority of the US system over the European system in the 1990s). Therefore, diffusion does not take place spontaneously, and often involves intentional action on part of collective actors such as governments. A case in point is the diffusion of the patent system. After lead countries, the US, UK and France, had installed the patent system, it was only natural that this led to a rapid growth of patents. But other countries did not follow up fast and in the same direction. For example, in pharmaceuticals and chemicals, lead economies of the late 19<sup>th</sup> and early 20<sup>th</sup> century only slowly adopted the patent system. An extreme example is Switzerland, certainly a lead country in that field, which even had prohibited patents on chemicals and pharmaceuticals by the constitution. Patents were only gradually introduced after 1907, and the final step was only taken in 1977, when patents on products were introduced for the first time (as distinct from processes). In fact, in the 19<sup>th</sup> century those countries that had adopted the patent system early, lost competitive edge in chemicals rapidly, namely France and Britain. This observation can be explained by the performative nature of the institution: IPRs are institutions where, in Searle’s terms, a ‘gap’ between action and performance exists which leaves room for creative freedom. Therefore, these institutions do not diffuse spontaneously, so that other factors come into play, such as strong interests groups, ideological trends or just the willingness to copy institutions of other countries. However,

once the institutions come into existence, they change the behavior of actors, such as focusing corporate strategies on the exploitation of IPRs.

So I propose that a taxonomy of economic systems should be built on the identification and classification of strongly performative institutions relative to their contexts. There are many areas where performative institutions can be identified. For example, one classical issue in the transition to capitalism is the question how far the privatization of property rights in agriculture was a necessary condition, which relates to more specific issues such as the role of the commons in agricultural regimes. Again, there is a complex scientific record with reference to the question whether, for example, the British enclosure movement actually raised agricultural productivity (Allen 2009). At the same time, the incentive issues with governing the commons need to be approached in a much more differentiated way than suggested by the simple economic theory of property rights (Ostrom 1990). All in all, this is a strong indicator that the introduction of certain kinds of property rights in European agriculture was strongly performative, and thus might serve as another distinctive feature of modern capitalism, as being distinguished from earlier regimes, such as European feudalism.

## 5 Conclusion

I leave the elaboration of a possible fully-fledged classification of economic systems to future work. I expect a number of significant deviations from established approaches. One is that we cannot rely on universal classificatory principles such as the distinction between ‘market economy’ and ‘planned economy’. This is because we always need to refer to performative actions in order to identify performative institutions. Performative actions always take place in particular historical and spatial contexts, so that classifications will always manifest a strong contextual element. One example is the paradigm of ‘financial capitalism’ which clearly refers to the historical setting of Anglo-Saxon economies, and to a series of performative actions (such as legal changes) that took place there.

However, this observation also suggests another principle, which is that we also will not end up in a purely historical sequence, in the sense of identifying systems in time and space as individuals, such as the US economy after 1980 until today as ‘US financial capitalism’. The reason is that strongly performative institutions can diffuse across different systems and thereby change the nature of other systems, possibly ending up into convergence. So, the European system underwent a convergence with the American system, for example, by adopting the IFRS. We also recognize that diffusion processes do not automatically result into full-scale convergence, but possibly into a state where different systems are just variants of a more universal system defined by the performative institutions. Thus, modern capitalism has been emerging as a global system in the 20<sup>th</sup> century, with different systems such as the European, the Russian or the Chinese one being today variants of this system. This viewpoint matches with the ‘varieties of capitalism’ literature, and also suggests that there are ‘genera’ and ‘species’ of systems, with ‘capitalism’ being a possible candidate for a ‘genus’, and ‘financial capitalism’ for a ‘species’.

I have argued that the identification of strongly performative institutions can be based on a revised version of Aoki’s model of institutions. This model puts together the elements of sign systems (public representations), behavioral dispositions and the idea that institutions are equilibrium states in complex strategic interactions between different actors of the economy. So, it allows to receive the insights of other important approaches. For example, the strategic

interactions can be interpreted in terms of the political economy of interest groups, and thus opens the analysis to political science. Or, the behavioral dispositions can be seen as a form of habitus which is shared among certain actors, eventually resulting into certain ‘types’ (such as the ‘investor’), which introduces sociological analysis. Thus, the proposed approach leads back to cross-disciplinary approaches that had been characteristic for the pertinent research a century ago, such as the works of Werner Sombart and Max Weber. Weber’s notion of ‘rationalism’ in modern capitalism lends itself easily to the analysis of performativity. Thus, I think that a major advantage of performativity analysis is its capacity to unify different perspectives on the complexity of economic systems.

## References

Akerlof, George A. / Shiller, Robert (2009): *Animal Spirits. How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*, Princeton and Oxford: Princeton University Press.

Akerlof, George A. and Kranton, Rachel E. (2000): *Economics and Identity*, *Quarterly Journal of Economics* CXV(3): 715-753.

Allen, Robert C. (2009): *The British Industrial Revolution in Global Perspective*, Cambridge\_ Cambridge University Press.

Aoki, M. (2011): *Institutions as Cognitive Media between Strategic Interactions and Individual Beliefs*, *Journal of Economic Behavior and Organization*, vol. 79: 20-34.

Aoki, Masahiko (1996): *An Evolutionary Parable of the Gains from International Organizational Diversity*, in: Landau et al. (1996), S. 247-263.

Aoki, Masahiko (2001): *Toward a Comparative Institutional Analysis*, Stanford: Stanford University Press.

Aoki, Masahiko (2007): *Endogenizing Institutions and Institutional Change*, *Journal of Institutional Economics* 3(1): 1-31.

Arrighi, Giovanni (2007): *Adam Smith in Beijing. Lineages of the Twenty-First Century*, London and New York: Verso.

Berger, Suzanne / Dore, Ronald, eds. (1996): *National Diversity and Global Capitalism*, Ithaca et al.: Cornell University Press.

Boldrin, Michele / Levine, David K. (2008): *Against Intellectual Monopoly*, Cambridge et al.: Cambridge University Press.

Bruns, Axel (2008): *Blogs, Wikipedia, Second Life, and Beyond: From Production to Production*, New York: Peter Lang.

Butler, Judith (2010): *Performative Agency*, *Journal of Cultural Economy* 3(2): 147-161.

Çalışkan, Koray / Callon, Michel (2009): *Economization, part 1: Shifting Attention from the Economy Towards Processes of Economization*, *Economy and Society* 38(3): 369-398.

Çalışkan, Koray / Callon, Michel (2010): *Economization, part 2: A Research Programme for the Study of Markets*, *Economy and Society* 39(1): 1-32.

Callon, Michel (2007): *What Does It Mean to Say That Economics is Performative?* In: MacKenzie et al. (2007): 344-357.

Clark, Andy (2011): *Supersizing the Mind. Embodiment, Action, and Cognitive Extension*, Oxford: Oxford University Press.

Clark, Andy / Chalmers, David J. (1998): *The Extended Mind*, *Analysis* 58: 10-23.

Coriat, Benjamin / Weinstein, Oliver (2005): *Patent Regimes, Firms and the Commodification of Knowledge*, *Socio-Economic Review* 10: 267-292.

D'Adderio, Luciana (2011): *Artifacts at the Centre of Routines: Performing the Material Turn in Routines Theory*, *Journal of Institutional Economics* 7(2): 197-230.

Deci, Edward L. / Koestner, Richard / Ryan, Richard M. (1999): *A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation*, *Psychological Bulletin* 125(6): 627-668.

Denzau, Albert T./North, Douglass C. (1994): *Shared Mental Models: Ideologies and Institutions*, *Kyklos* 47: 3-32

Djankov, Simeon et al. (2003): *The New Comparative Economics*, *Journal of Comparative Economics* 31: 595-619.

Elvin, Mark (1973): *The Pattern of the Chinese Past*, Stanford: Stanford University Press.

Falk, Armin / Kosfeld, Michael (2006): *The Hidden Costs of Control*, *American Economic Review* 96(5): 1611-1630.

Frey, Bruno S. (1997): *Not Just For the Money. An Economic Theory of Personal Motivation*, Brookfield: Edward Elgar.

Ghoshal, Sumantra (2005): *Bad Management Theories Are Destroying Good Management Practices*, *Academy of Management Learning & Education* 4(1): 75-91.

Green, Mitchell, "Speech Acts", *The Stanford Encyclopedia of Philosophy* (Spring 2009 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2009/entries/speech-acts/>.

Guiso, Luigi / Sapienza, Paola / Zingales, Luigi (2006): *Does Culture Affect Economic Outcomes?* *Journal of Economic Perspectives* 20(2): 23-48.

Hackett, Edward J. / Amsterdamska, Olga / Lynch, Michael / Wajcman, Judy, eds. (2008): *The Handbook of Science and Technology Studies*, Cambridge and London: MIT Press.

Hartley, John (2009). *The Uses of Digital Literacy*, St. Lucia: Queensland University Press.

Herrmann-Pillath, Carsten (2004): *The Evolutionary Perspective on Institutional Divergence and Competitive Advantage*, in: Werner Pascha, ed., *Systemic Change in the Japanese and German Economies. Convergence and differentiation as a dual challenge*, New York: RoutledgeCurzon, 2004, 51-84.

Herrmann-Pillath, Carsten (2009): *China's Path-dependent Transition: Culture Mediating Between Market and Socialism*, in: Janos Kornai and Qian Yingyi, ed., *Market and Socialism in the Light of the Experiences of China and Vietnam*, International Economic Association conference volume 146, London: Palgrave, 110-134

Herrmann-Pillath, Carsten (2010): *A Neurolinguistic Approach to Performativity in Economics*, *Journal of Economic Methodology* 17(3): 241-260.

Herrmann-Pillath, Carsten (2012): Institutions, Distributed Cognition and Agency: Rule-following as Performative Action, *Journal of Economic Methodology* 19(1), 21-42

Hutchins, Edwin (1995): *Cognition in the Wild*, Cambridge and London: MIT Press.

Hutchins, Edwin (2005): Material Anchors for Conceptual Blends, *Journal of Pragmatics* 37: 1555-1577.

James Jr., Harvey S. (2005): Why Did You Do That? A Economic Explanation of the Effect of Extrinsic Compensation on Intrinsic Motivation and Performance, *Journal of Economic Psychology* 26: 549-566.

Knorr Cetina, Karin / Preda, Alex, eds. (2005): *The Sociology of Financial Markets*, Oxford et al.: Oxford University Press.

Kuran, Timur (2009): Explaining the Economic Trajectories of Civilizations: The Systemic Approach, *Journal of Economic Behavior & Organization* 71: 593-605.

Landau, Ralph/Taylor, Timothy/Wright, Gavin, eds. (1996): *The Mosaic of Economic Growth*, Stanford: Stanford University Press.

Lin, Justin Linyi (2010): *New Structural Economics. A Framework for Rethinking Development*, Policy Research Working Paper 5197, Washington: The World Bank.

Lindenberg, Siegwart (2001); Intrinsic Motivation in a New Light, *Kyklos* 54(2/3): 317-342.

MacKenzie, Donald (2006): *An Engine, Not a Camera. How Financial Models Shape Markets*. Cambridge and London: MIT Press.

MacKenzie, Donald (2007): Is Economics Performative? Option Theory and the Construction of Derivatives Markets, in: MacKenzie et al. (2007): 54-86.

MacKenzie, Donald / Muniesa, Fabian / Siu, Lucia, eds. (2007): *Do Economists Make Markets? On the Performativity of Economics*, Princeton and Oxford: Princeton University Press.



Mokyr, Joel (2009): Intellectual Property Rights, the Industrial Revolution, and the Beginnings of Modern Economic Growth, *American Economic Review: Papers & Proceedings* 99(2): 349-355.

Moser, Petra (2005): How Do Patent Laws Influence Innovation? *American Economic Review* 94(4): 1214-1236.

Naughton, Barry (2010): China's Distinctive System: Can It Be a Model for Others? *Journal of Contemporary China* 19(65): 437-460.

North, Douglass C. (1981): *Structure and Change in Economic History*, New York: Norton.

North, Douglass C. (1990): *Institutions, Institutional Change, and Economic Performance*, Cambridge et al.: Cambridge University Press.

North, Douglass C. (2005): *Understanding the Process of Economic Change*, Princeton and Oxford: Princeton University Press.

Perry, James / Nölke, Andreas (2006): The Political Economy of International Accounting Standards, *Review of International Political Economy* 13(4): 559-586.

Pomeranz, Kenneth (2000): *The Great Divergence. China, Europe, and the Making of the Modern World Economy*, Princeton and Oxford: Princeton UP.

Preda, Alex (2005): The Investor as a Cultural Figure of Global Capitalism, in: Knorr Cetina / Preda (2005): 141-162.

Preda, Alex (2008): STS and Social Studies on Finance, in: Hackett et al. (2008): 901-920.

Rodrik, Dani (2007): *One Economics, Many Recipes. Globalization, Institutions, and Economic Growth*, Princeton and Oxford: Princeton UP.

Searle, John R. (1995): *The Construction of Social Reality*, New York: Free Press.

Searle, John R. (2005): What Is an Institution?, *Journal of Institutional Economics* 1(1): 1-22.

Searle, John R. (2010): *Making the Social World. The Structure of Human Civilization*, Oxford: Oxford University Press.

Skyrms, Brian (2010): *Signals. Evolution, Learning, & Information*, Oxford: Oxford University Press.

Sliwka, Dirk (2007): Trust as a Signal of a Social Norm and the Hidden Costs of Incentive Schemes, *American Economic Review* 97(3): 999-1012.

Streeck, Wolfgang (2010): *Re-Forming Capitalism: Institutional Change in the German Political Economy*, Oxford: Oxford University Press.

Sugden, Robert (2011): Salience, Inductive Reasoning and the Emergence of Conventions, *Journal of Economic Behavior and Organization* 79: 35-47.

Tuomela, Raimo (1995): *The Importance of Us. A Philosophical Study of Basic Social Notions*. Stanford: Stanford University Press

Tuomela, Raimo (2007): *The Philosophy of Sociality*, Oxford: Oxford University Press.

Tuomela, Raimo (2011): Searle's New Construction of Social Reality, *Analysis Reviews* 71(4): 707-719.

Young, Joni J. (2001): Risk(ing) Metaphors, *Critical Perspectives on Accounting* 12: 607-625.

Young, Joni J. (2001): Risk(ing) Metaphors, *Critical Perspectives on Accounting* 12: 607-625.

Zaloom, Caitlin (2004): The Productive Life of Risk, *Current Anthropology* 19(3): 365-391.

Ziman, John, ed. (2000): *Technological Innovation as an Evolutionary Process*, Cambridge et al.: Cambridge University Press.

Zweynert, Joachim (2011): Shock therapy and the transfer of institutions: the new debate and some lessons from the post-1806 reforms in Prussia and in southwestern Germany, *Constitutional Political Economy* 22:L 122-140.

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