The semiosis and the market. Peirce's semiotics for economic sociology

The importance of signs in the functioning of the contemporary economy has tended to be doubly underestimated by sociologists, by being restricted to the sphere of consumption on the one hand, and to instituted signs on the other. Peirce's concepts, and in particular that which refers to the contextualized evolution of a sign (*semiosis*), can remedy this situation by enriching the sociology of markets. Coordination between buyers and sellers is based on a process of transmission and reception of different types of signs: some are stabilized and the interpretation "flows naturally" – these are the *conventions* well identified by economic sociologists –, while others are more ambiguous and leave a great deal of room for indeterminacy. In the latter case, the concept of semiosis makes it possible to finely identify the techniques used by actors to buy or sell in situations of uncertainty. After presenting Peirce's conceptual architecture, this paper illustrates the interest of such an import from a case study centered on the role of stock market indices in the functioning of contemporary financial markets.

Keywords: Semiosis, Signs, Markets, Peirce, Conventions, Economic Sociology, Finance

Introduction

At least since the work of Jean Baudrillard (1968), the social sciences have paid attention to the role of signs in the economic sphere. Advertising techniques, strategies of distinction through luxury, and the role of the actor-consumer have thus given rise to fruitful investigations in economic sociology mobilizing semiotic tools (Goldman and Papson, 1996; Lash and Urry, 1993; Mortelmans, 2005). However, this work has focused almost exclusively on the consumption pole; the coordination process at the heart of market functioning has been much less explored. In contrast, contemporary sociology of markets has focused on “economization processes” by integrating the semiotic issue. In particular, the field of the “socio-economics of conventions” has focused on the conditions that must be met for sellers and buyers to agree on the value of a good, that is for the supply and demand curves to meet (Eymard-Duvernay, 2006). Its essential hypothesis is that market participants mobilize *conventions* that enable them to stabilize their interpretation of the value of the commodity. These conventions take different forms: indicators (quantification convention), definition of the product exchanged (qualification convention), criteria for a good commodity (quality convention), etc. As fruitful as it is, by focusing on conventions, this research perspective has neglected the role of other types of signs, less stabilized than the convention, in the process of market coordination.

The ambition of this paper is to demonstrate the interest of Charles Sanders Peirce's work to fill the mutual blind spots of these two approaches. Peirce's concepts, and in particular the concept of the contextualized evolution of a sign (*semiosis*), can enrich economic sociology by opening the way to a plural and circumstantial analysis of the role of signs in markets. Buyers and sellers rely not only on stabilized signs whose interpretation is "self-evident" – i.e. *conventions* – but also on more ambiguous signs that leave a great deal of room for indeterminacy. In the latter case, the concept of semiosis makes it possible to finely identify the techniques used by actors to buy or sell in situations of uncertainty. The fruitfulness of these Peircian categories has already led to original works highlighting the precariousness of the processes of signification and its dependence on the socio-material configuration of situations (for an overview of "Peircian sociology", see Berger et al., 2018). These issues are not ignored by the contemporary sociology of markets, but could be better grasped by importing the concept of semiosis.

The rest of the paper is structured as follows. First, Peirce's conceptual architecture is exposed, in connection with the contributions and blind spots of the socio-economics of conventions. Then, the second part illustrates the interest of importing the concept of semiosis into the sociology of markets, based on a case study centered on the role of stock market indices in the functioning of contemporary financial markets. By polarizing the attention of market participants, these indicators have acquired a semiotic power, that is a capacity to influence the interpretation of buyers and sellers, which has so far passed under the radar of economic sociologists. Finally, we will review the main results and discuss their implications for research in economic sociology.

Semiosis for a sociology of markets attentive to plurality

In recent years, the sociology of markets has intensely focused on “economization processes,” that is on the operations that constitute the economic sphere by qualifying certain objects and equipping market participants (Çalışkan and Callon, 2010). These operations are usually studied through the devices that support them: for example, the emergence of an options market is analyzed through the prism of the success of the pricing model for these options (MacKenzie, 2006). This leads to a particular focus on “successful”, and even “completed”, institutionalization attempts: the objects studied are generally those that have effectively entered the economic sphere thanks to stabilized mechanisms. The semiotic aspect of this epistemological posture is that only *instituted* signs are studied for their role in the functioning of markets. With rare exceptions (Muniesa, 2007; Pinzur, 2016; Lee, 2018), more fragile signs have been ignored. To discuss the merits and limitations of such an approach, this section draws on a field of research that is representative of it and has explicitly integrated the semiotic issue into its research program: the socio-economics of conventions (SEC).

Born in the 1980s, SEC aims to problematize the coordination of market participants. More precisely, its objective is to account for how these participants agree on the nature and value of the commodity (Eymard-Duvernay, 2006). This theoretical proposition has the merit to integrate important insights from economic sociology, such as the framework of limited rationality theorized by Herbert Simon (1997). Faced with the intrinsic limits of rationality, our decisions cannot reach a true threshold of optimization, but only a form of satisfaction. To achieve this, the actor follows procedures based on heuristics and benchmarks which do not have the precision of algorithmic calculations. This highlighting of limited rationality does not, however, contest the principles of methodological individualism. It does not seek support from pre-given holistic structures which would weigh on individual reasoning. Actually, individual rationality depends on the construction of shared conventions and rules. In this perspective, the social has real autonomy without presupposing that collective actors other than individual subjects would be at work.

These conventions are not only coordination tools of behaviors, as are the classical illustrations proposed by David Hume or David Lewis (e.g. rowers who manage to coordinate their movements effectively). They also coordinate interpretations via shared representations of justice and common good. In short, they are rules of interpretation that are often implicit, relatively arbitrary and self-reinforcing (Batifoulier and de Larquier, 2001). In this framework, the process of electing a convention is therefore fundamentally intersubjective: each participant acts according to his or her anticipation of the actions and interpretations of the other participants who do the same. This is why the sociology of markets inspired by the SEC examines above all the salience, that is the signs that polarize the attention of market participants and thus influence their behavior (Orléan, 1999). These signs, often described as “performative” because of their impact on reality, constitute the institutional framework that enables market coordination. Without them, individuals would be unable to identify the qualities of the objects exchanged.

One of the main contributions of this approach is to overcome the “price monopoly”. According to the neoclassical perspective on information, the only sign worth studying, both for the market participant and for the scientist, is the price – the latter integrating “all available information” in a situation of market efficiency (Fama, 1970). The SEC breaks with this “spontaneous” approach, not by contesting the semiotic role of price, but by introducing semiotic mediations that relativizes its monopoly. Signs other than the price are mobilized by market participants as a basis for their decision-making and therefore also deserve to be analyzed. However, this extension remains limited to signs that are sufficiently established to influence the entire community of market participants. Yet, as many empirical studies have shown (see next section for an illustration), this type of sign is not sufficient to solve the problem of market coordination. Other sources of information are mobilized by market participants to reduce uncertainty. To grasp this semiotic plurality, the conceptual framework proposed by Charles Sanders Peirce is a fruitful avenue.

For Peirce, semiosis is a process of signification involving "*the cooperation of three subjects*" (Peirce, 1931-1935: 1874): a *sign* or *representamen* (e.g., a cry) that refers to an *object* (a person's fear or distress) for an *interpretant* (the effect produced: directing attention to the origin of the cry)[1]. Let us directly underline the pragmatic dimension of semiosis. On the one hand, the relationship between the sign and the object (which will determine the one between the sign and the interpretant) is attached to a situation; in other words, only practice informs to which object the sign refers (for a cry: surprise, joy, distress, madness…). On the other hand, the attribution of a semiotic status is also contextual: a public cry can become the *object* if a witness plans to mime the situation, while the orientation of the witnesses' attention can be a *sign* of an event "worthy of attention" for other passers-by.

This pragmatic orientation is the source of an affinity between this conceptual framework and the empirical approach of the social sciences in general, and of sociology in particular (Berger et al., 2018). It enjoins the researcher to leave her desk and "go see what's going on" if she wants to solve the riddle of signification. That said, this posture cannot result in complete indeterminacy: in reality, social actors are capable

[1] We take up here the general presentation of Peircian concepts developed in Duterme (2023a).

of anticipating most of the signs they encounter in their daily lives and adjusting – *naturally* – to their expected consequences. This naturalization of their semiotic environment is the result of learning a set of assumptions about what signs, objects and interpretants are. These ontological assumptions constitute a semiotic ideology (Keane, 2018): characteristic of an "interpretive community", this ideology enables its members to make sense of the world and act in it naturally – at least in most situations (for the reduction of uncertainty enabled by semiotic ideology is never infallible). From a methodological standpoint, Peircian semiotics therefore calls for an analysis of both situations of uncertainty – to identify the contextual relationships between sign, object and interpretant – and of the knowledge shared within an interpretive community – to grasp how this uncertainty is collectively managed.

Each component of semiosis (sign, object, interpretant), as well as each relationship between these three components, Peirce tells us, can itself take three forms[2]. In the framework of the sociology of markets, two triads are particularly relevant. The first one is about the ways in which the sign refers to the object: it allows us to pluralize the types of signs studied – beyond conventions. The second triad concerns the ways in

[2] These triads are always structured around the three categories of Peirce's philosophy: Firstness (pure quality remaining at the state of potential; for example, the solidity), Secondness (actual causal relation; a stone hitting a wall), Thirdness (general mediation, ensuring predictability; the law announcing the reaction of the wall to the shock of the stone).

which the sign produces an effect: it opens the way to a more to grasp the in-depth analysis of the different forms of “performativity”.

The referral of the sign to the object can be iconic, indexical or symbolic (Peirce, 1931-1935: 385). The icon *resembles* the object; it therefore owes its semiotic power only to its own quality (a unicorn drawing is a sign, even if its object does not exist). The index is *marked* by the object; it testifies to the object by a physical connection with it (a weather vane can only refer to its object if the wind actually blows). The symbol is associated by *convention* with the object; it refers to the object via a mediator who links them by virtue of a general rule (the semiotic quality of a word is based only on the convention regulating interpretation). On a market, as the authors inspired by the SEC have well noted, symbols are omnipresent, helping buyers and sellers to coordinate. However, these conventional signs do not have a monopoly on semiosis: rarely sufficient to enable market actors to make their decisions, they are accompanied by icons and indices. Take, for example, a Sunday village market. Of course, fruit will be assessed against standardized signs such as organic label or protected designation of origin. But that’s not all. Consciously or not, buyers will also mobilize the logos of producers and the large photos of fruit lining the stalls – in other words, icons. Finally, they will rely on indices, such as the length of the queue, which is a *mark* of a merchant’s success. All these types of signs deserve the attention of the economic sociologist, and Peircian tools help bring them to light.

That being said, it is advisable not to confine the sign a priori to one of the three types of reference; the latter rather form layers that the situation – and the interpretive community – will hierarchize. Such an attitude will also make it possible to grasp the evolution of the dominant types of reference: Peirce notes, for example, that language tends to "symbolize" itself, moving from iconic writings such as hieroglyphics to "*conventional sound signs*" (Peirce 1931-1935: 378, cited *in* Viola, 2018). As we shall see with the example of stock market indices, the signs used by market participants are also evolving, with certain icons stabilizing to the point of becoming conventional, that is – in the Peircian lexicon – symbols. In this way, this first triad allows us to grasp economic signs in their plurality, but also in their dynamics.

As for the relationship between the sign and the interpretant, it can be rhematic, dicent or argumentative. This second triad will enable us to distinguish different types of effect of a sign on economic reality (these effects often being confused under the all-encompassing label of "performativity"). A rheme loosely determines its interpretant, limiting itself to *suggesting* a potentiality; "*not true nor false*" (Peirce, 1931-1935: 2746), it is illustrated, in Peirce's work, by phrases with blanks, such as " -- *buys*-- *from* -- *for the price* – " (Peirce, 1931-1935: 987). A dicisign transmits information "*without furnishing any rational persuasion of it*" (Peirce, 1931-1935: 390); it relies on previous experience to *submit* an interpretation. Peirce takes the example of a photograph: "*The mere print does not, in itself, convey any information. But the fact, that it is virtually a* *section of rays projected from an object* **otherwise known**, *renders it a Dicisign*" (Peirce, 1931-1935: 394, emphasis by Peirce). The argument, finally, *involves* its interpretant, whom Peirce then calls its "*conclusion*" (Peirce, 1931-1935: 312); deductive reasoning, for example, brings into play arguments that constrain the interpretant to the point of making it necessary. Let's return to our example of the Sunday village market to understand the value of studying the different forms of performativity generated by more or less stabilized signs. The effect of an organic label or a protected designation of origin leaves little doubt: these signs *prove* the quality of products and encourage purchases. The consequences of a long queue in front of a stand are more uncertain: it *invites* people to join the queue to enjoy the prized fruit, but it doesn't demonstrate the quality of the fruit. Some buyers may "refuse" this invitation, believing the queue to be unjustified, inflated by the fashion effect. Finally, in a rhematic relationship with the interpretant, the merchant's logos and fruit images are only vague suggestions, and can give rise to numerous interpretations (and therefore to different purchasing behaviors): authentic, flashy, window-dressing… By their more uncertain effects, *dicisigns* and *rhemes* weigh on the functioning of markets. If the semiotic universe were populated only by solid conventions, how could we account for the instability of markets?

Let us insist one last time: these semiotic statuses are neither exclusive nor fixed – so we must read with caution the table often presented and repeated below, which summarizes the two triads we have just presented. One aspect in particular which does not appear in the table, but which is central to this paper, is the movement of these statuses. Just as the sign-object relation tends to evolve, in the case of language, towards the symbol, the sign-interpretant relation tends to evolve towards the argument. Indeed, in order to limit the volatility of their interpretation, humans tend, says Peirce, to stabilize the sign-interpretant relation by the effect of habit (De Munck, 2020). Repetition is an essential part of this dynamic: "*repetitions of the actions that produce the [habit-]changes increase the changes*" (Peirce, 1931-1935: 1871). This stabilization then alters the semiotic status of the sign that produces its effects with more and more certainty. Let us think, for example, of the free tastings organized in certain markets, such as the wine market (Diaz-Bone, 2013). The interpretants are at first under-determined, almost random ("is it a scam?"; "it must be out of date"; "great, it's our lucky day!"…), then – by habit, that is to say by dynamics of collective learning (confirmation of peers, etc.) – converge towards the gift/counter-gift ritual that structures this market (free tasting against a "commitment" to buy a few bottles). With the exception of members on the bangs of the interpretive community (children, foreigners unfamiliar with the wine market…), these free tastings are now a sign that leaves no doubt as to their effects; they have become conventional. That being said, habit, however instituted, never ensures complete certainty of the future: "*chance or uncertainty shall not be entirely obliterated by the principle of habit, but only somewhat* *affected*" (Peirce, 1931-1935: 154). Crises of confidence, such as those that occur during market crashes, bear striking witness to this.

	Firstness	**Secondness**	**Thirdness**
Relation to the object	*Iconic* (looks like)	*Indexical* (marked)	*Symbolic* (refers to by convention)
Relation to the interpretant	*Rhematic* (suggests)	*Dicent* (proposes)	*Argumentative* (implies)

Figure 1 - Key concepts of Peircian semiotics

The Peircian framework of analysis is not frontally opposed to the SEC. We have discussed elsewhere the similarities between the two research programs (De Munck, 2020). Among these convergences is, of course, the pragmatist orientation that leads the sociologist to analyze the *uses* of signs in situation. Another common point is their analysis of market regulation processes: the SEC and Peircian sociology are opposed to both the "spontaneism" of neoclassical microeconomics – because instituted signs are indispensable for the emergence of a market – and the intentionalism of a certain institutionalism – because signs are rarely controlled and their effects are often unintended.

However, an essential difference distinguishes the two research programs: the SEC focuses on conventions, whereas Peircian sociology, thanks to the concept of semiosis, embraces the processes of signification in their plurality and their dynamism. The consequences for the analysis of markets may seem limited at first sight. If conventions, thanks to their degree of institutionalization, are the most influential signs, why then encumber the analysis with icons and indices, these minor signs of limited scope? Two issues invite us to contest this position. On the one hand, non-conventional signs weigh heavily on the functioning of many markets. On the other hand, conventions do not emerge spontaneously; the plurality and dynamism of the Peircian framework allows us to shed light on their emergence. The rest of this paper intends to demonstrate these two arguments through a case study.

Plurality and dynamism of signs in financial markets

So far, we have attempted to demonstrate theoretically the interest of importing the concept of semiosis into the field of economic sociology. In order to concretize this argument, this section briefly presents a case study using Peircian tools. The latter concerns the importance of certain signs in the functioning of financial markets. More precisely, it gives an account of the plurality of semiotic roles assumed by an informational device that has become inescapable: the stock market index. Methodologically, it is based on participant observation in a trading room of a major European bank, as well as on some thirty interviews with traders and asset managers. In a way, then, we have followed the "methodological recommendation" drawn from Peircian semiotics: examine how signs, objects and interpretants are articulated in situation, and within an interpretive community (in this case, stock market professionals).

Of course, stock market indices are not the only signs that populate the financial markets. Far from it. Even more than the Sunday village market mentioned above, modern financial markets constantly receive and emit a multitude of signs. The environment of financial market professionals - from the six computer screens that make up the personal desk, to the financial TV channel that constantly broadcasts the news, to the calls made by trading room colleagues - is semiotically saturated. As a result, the work of market participants can be seen as an effort to select, prioritize and interpret signs. Charles W. Smith, a trader turned sociologist, offers a vibrant, if somewhat dramatized, description of this condition:

> "*In acting sensibly, the major difficulty is not simply that there are numerous markers that must be monitored but that these markers come and go. The crucial task here is not to become fixated on any given set of markers at any given time, since new markers of importance are apt to appear suddenly while others are likely to disappear. (...) Some key markers take the form of the expected not happening: these markers make their mark by continuing to remain dormant. (...) When a marker appears, it still needs to be interpreted within the existing context*" (Smith, 2011: 279-284).

In this context, what is so special about stock market indices? Why should we be interested in this type of sign rather than another? Because they have recently acquired such importance that they are no longer just one sign among many, but, arguably, the most important sign on the equity market – where they occupy a role analogous to that of credit ratings on the bond market (Petry et al., 2021). For most of the 20th century, however, indices were confined to a rather passive role: that of representing the market as a whole. Indeed, calculated from the price of a potentially very large sample of stocks, the stock market index is often mobilized as a synonym for the market: financial commentators use its movements to gauge “market sentiment”. However, an important development in the financial markets has seen these indicators move beyond their role as a passive reflection of the market: the passive management revolution.

Since the 1980s, part of the financial community has been converted to “passive management”: justified by the theories of informational efficiency according to which “you can’t beat the market”, the latter aims to obtain the “return of the market”. This strategy must therefore be based on an object conventionally recognized as representative of the market. It translates into a replication of a stock market index: to obtain the “return of the market”, the “passive managers” acquire all the securities included in a stock market index (and according to its proportions). The most popular stock market indices have thus become powerful signals: they dictate the capital allocation of passive managers, and indicate to their rivals – the “active managers” – the “normal” return to beat. In January 2024, passive managers collected more money than passive managers for the first time, at around $13.3tn (Schmitt, 2024).

This role of the index as a *convention* has been clearly identified by several studies inspired by the SEC. On the one hand, the power of the firms that construct these indices has been highlighted. In fact, passive managers delegate their decision-making power to the index producers, in such a way that the indices occupy today a role in the stock market similar to that of credit ratings in the bond market (Petry, 2021; Petry et al., 2021). And because there are many ways to construct a stock index, these "stock index engineers" are able to favor certain audiences over others (Duterme, 2021, 2023b). On the other hand, researchers have revealed the importance acquired by stock market indices for "active managers" and the rest of the market. The performance of all asset managers is now compared to the benchmark that the stock market index has become (Tadjeddine, 2016). As a result, even the decision-making process of "active managers" is heavily influenced by the index, as sociologist Donald MacKenzie notes following his field survey:

"*If, as was increasingly the case, a manager's performance was judged relative to an index such as the S&P 500, then there was some safety in selecting a portfolio that closely resembled the makeup of the index. (...) It greatly lessened the chances of a career-killing relative underperformance: if one's portfolio did badly, those of other managers would most likely be doing badly too, so the fault would be seen to lie with the market, not the manager*" (MacKenzie, 2006: 86).

For traders too, the omnipresence of indices has given these signs a conventional power. Everyone knows that the rest of the community carefully scrutinizes their evolution and therefore tries to anticipate their reaction in order to profit from them. In particular, this type of self-referential dynamic has given rise to a phenomenon that has been empirically attested several times: the "roundophobia" (Woodhouse et al., 2016). When a closely followed index approaches "round numbers" (e.g. prices ending in 00), its growth weakens so that the index does not cross this symbolic threshold. For example, the growth of the Dow Jones has been regularly interrupted near the threshold of tens of thousands. The roots of this “abnormality” are semiotic, and – more precisely – conventional: each trader, knowing that other traders know about this phenomenon and will try to profit from it, will sell before the fall and thus feed the roundophobia.

The point here is not to contest the fruitfulness of this work inspired by the SEC. The aim is rather to bring to light, thanks to the concept of semiosis, the particularity of the type of sign treated: stock market indices do not intervene in the financial markets only as conventions (“symbols” in Peirce’s terminology). In other situations, they also appear as less stabilized signs, that is as icons and indices. For equity traders, these other roles are the most common and influence most of their buying and selling decisions. It is therefore important to take them into account in order to appreciate the plurality of semiotic statuses of stock market indices.

As icons, indices have not “reached” the stage of convention (as “normal return” or “roundophobia” has): they refer to their object by *resemblance*. In this case, *some* traders see in the evolution of the index the image of something that *could* announce a future evolution. The interpretation of this type of sign is not very stable. It is fragile and depends almost on each trader. And yet, for lack of a better way to support their decisions, this type of sign is frequently mobilized by traders, especially those convinced by the “technical analysis” (Edwards et al., 2018). Unlike fundamental analysis, which relies on the examination of company balance sheets, technical analysis bases its predictions on trends “revealed” by historical stock prices. This type of sign under-determines its interpretant: traders using the same graph can come up with very different recommendations. Furthermore, the same financial analyst can interpret an index movement in a very "open" way, as this analyst met by Olivier Godechot (2016) did:

"*He envisaged a decline that should stop either at 2812, or 2784, or in the worst case at 2650, unless the prices go up, in which case it would reach 2857 or 2885*" (Godechot, 216: 424).

As an icon, the index thus draws shapes that traders try to relate to cases they have already encountered. But, at this stage of semiosis, these efforts do not (yet) lead to a standardization of the interpretant and therefore often result in unsuccessful actions.

Secondly, as an index, the stock market index refers to its object not by convention nor by resemblance, but by "physically" bearing its imprint. Like the prices of the stocks they aggregate, stock indices move with the buying and selling of financial actors. In the eyes of traders, certain movements therefore signal the behavior of their competitors. This regime of signification is common enough to appear frequently in the financial press; thus, a Bloomberg analyst recently described the movements of the major U.S. stock index as follows:

"*After a bounce that started around noon in New York and was attributed to a big options trade, the S&P 500 came back lower again*" (Nazareth, 2022).

In practice, this type of sign can be "passively" perceived by a trader, but also "provoked" by him in order to obtain information about "opposing positions". If a moderate buy order greatly affects the Dow Jones, it is an *index* of the weak presence of sellers[3]. The interpretation of indices as an index is more stable than that of icons, but less than that of conventions: after detecting the presence of competitors, the trader can decide to follow the trend (if he thinks the movement is structural) or to counter it (if he thinks it is momentary). Without convincing, this type of sign thus allows traders to frame their interpretation:

"*Traders try to gain contextual clues from their interactions with other traders (...); [this] helps traders create understandings of market fluctuations that direct their decisions to enter and exit the market*" (Zaloom, 2003: 7).

Thus, this type of markers "directs", but not "determines" the behaviors of traders.

This brief overview makes it possible to grasp the interest of understanding signs in their plurality. But the contribution of the concept of semiosis is not limited to this. It leads the researcher to be attentive to the dynamism of these semiotic statuses. Semiosis is a process, so that it would be a mistake to mobilize the Peircian triads in an overly fixed way: an icon can spread to the point of becoming a convention, while no convention is immune to destabilization, sending it back to the preconventional stage. For example, the "roundophobia" can be understood as an icon that "succeeded": initially localized and unstable, this sign has spread within the community – probably thanks to opinion leaders and textbooks – to the point of now giving rise to a univocal

[3] For other empirical illustrations of this "active detection" strategy, see Zaloom (2003), MacKenzie (2006), and Muniesa (2011).

and shared interpretation. In parallel to this “genealogical” reading of semiosis (Viola, 2018), semiotic dynamism can also be understood from a strategic point of view: in the financial markets, consensual signs are not profitable. When an interpretation is unanimous, it will only give rise to one type of order (buy or sell), preventing the dissensus necessary for trading. Traders are then encouraged to bounce on other signs, whose interpretation is not sufficiently stabilized to give rise to trading. Indeed, traders who use technical analysis sometimes mobilized this justification for using indices as icons: “*it allows me to see things before others*” (interview extract).

The semiosis, between pragmatism and institutionalism

Contemporary economic sociology has taken a “pragmatic turn” that sheds light on the conditions of constitution of the market environment (Muniesa, 2014). However, it may have tended to focus on the instituted markers that make economic reality “hold together”, at the expense of less stabilized signs. Peirce’s concept of semiosis reinforces the pragmatist roots of this sociology: it captures both the conditions of emergence of instituted signs and their incompressible precariousness. The conventions so useful to contemporary economic players do not come from nowhere, nor are they established once and for all. They are inherited from a successful institutionalization of icons or indices, but remain open to question by the interpretive community. At the crossroads of pragmatism and institutionalism, the Peircian conceptual framework thus invites economic sociologists to investigate the dynamic plurality of modalities of signification.

This Peircian "institutionalist pragmatism" also enables sociologists to approach the usual divide between subjectivism and objectivism in a new light. Does economic reality result from the projection of interacting actors, or from structures independent of the will of social agents? The concept of semiosis offers a way out of this false dilemma through inquiry: only through inquiry can we identify the different semiotic layers that make up economic reality. Some "rhematic" layers are weakly instituted: their form then varies according to individual interventions. Others, which are "conclusive", have a collective basis that guarantees their "anticipability": they are imposed on market participants via a conventional constraint (anticipating that other members of the community will interpret a stock market index movement upwards, each market participant is forced to buy to benefit from the coming capital gain).

The concept of semiosis thus calls for heightened vigilance with regard to the plurality and dynamism of the economic realities studied by sociologists. It also provides a nuanced assessment of the role of the "interpretive community". On the one hand, as emphasized by Webb Keane (2018) via his concept of "semiotic ideology", this role of the community must be integrated to avoid a spontaneistic interpretation of signification: if social actors are able to identify a sign as a sign and link its materiality to the object to which it refers, it is thanks to a set of shared beliefs acquired *prior* to the encounter with the sign. On the other hand, this should not lead us to a rigid, one-sided conception of the role of the interpretive community: its boundary is never definitively fixed, and its orientations bear the mark of encounters with past signs as much as they do their mark on encounters with future signs. Recent research by economic sociologists into the financial community supports this second point.

In our study of stock market indices, we identified equity traders and asset managers as members of the same interpretive community. This is because they use shared frames of reference to interpret stock market indices, enabling them to anticipate the actions of other members and thus to act in situations of uncertainty. In this sense, they share a "semiotic ideology". However, this ideology and this community evolve, so that their unity and causal power cannot be taken for granted. This is what Yuval Millo, Crawford Spence and James J. Valentine (2023) demonstrate: the rise of passive management (see above) has fractured the financial community, between supporters and opponents of the use of indices in asset management. Forced to justify the added value of their expertise, active managers are building an alternative "semiotic ideology", constituting a distinct financial sub-community. The role of the interpretive community therefore deserves to be grasped in accordance with the methodological precept at the heart of this paper: by being attentive to its plurality and evolution.

Peircian economic sociology is therefore demanding: it denies sociologists the right to posit the existence of an interpretive community – the latter must be traced. The resulting research program therefore appears “microsociological”: the concepts of Peirce’s semiotics make it possible to finely analyze situations of signification. But, as we have emphasized, this microsociological inclination does not prevent the sociologist from apprehending the dynamics of institutionalization: the study of a market situation thus sheds light on the evolution of market shaping. In our case study, the analysis of traders’ interpretations provides information on the logic of equity market valuation. This is one of the major strengths of this theoretical proposal.

This article is primarily aimed at economic sociologists, and its theoretical and methodological implications are therefore primarily intended for them. That said, since market participants are asking pretty much the same questions – “How do other members of the community interpret these signs?” –, it is not out of place to draw out the implications of the Peircian approach beyond the academic sphere. First and foremost, it seems to us that its pragmatist point of view does justice to the work of reducing uncertainty among market participants: many financial market professionals scoff at the objectivist theories of “fundamental value” and “informational efficiency”, so much so are they confronted with the challenge of uncertainty that these theories deny or underestimate. To say that industry professionals should familiarize themselves with Peirce’s terminology (dicent, rheme...) is a step we won’t take. That said, the

Peircean approach is more likely to pave the way for collaborative research: answering the same question from a different conceptual perspective, the sociologist is able to feed the reflection and action of those in the field.

Conclusion

Economic sociology does not need to discover the fruitfulness of semiotic tools: it has been using them for decades to analyze the sphere of consumption. By contrast, it has everything to gain by extending the scope of its analysis to the market. It is true that contemporary market sociology, like the SEC, is lively and does not ignore the role of signs in the operations of economization of social reality. But its focus is restricted to the most visible and most instituted type of sign: the convention. The ambition of this article is to demonstrate the interest of a pluralization of this field of research and the role that the Peircian concept of semiosis can play in this endeavor. We do not argue that the concepts already popular in the sociology of markets - device, framing, infrastructure, etc. - are incompatible with that of semiosis (Pinzur and Duterme, forthcoming). On the contrary, if we can get past the strangeness of Peircian terminology, the concept of semiosis can enrich the conceptual equipment of sociologists of markets.

References

Batifoulier P and de Larquier G (eds.). (2001) *Théorie des conventions*. Paris: Economica.

Baudrillard J (1968) *Le système des objets. La consommation des signes*. Paris: Gallimard.

Berger M, Gonzalez P and Létourneau A (2017) Présentation. Peirce et les sciences sociales. Une sociologie pragmaticiste ? *Cahiers de recherche sociologique* 62 : 7–19. https://doi.org/10.7202/1045612ar

Çalışkan K and Callon M (2010) Economization, part 2: A research programme for the study of markets. *Economy and Society* 39(1): 1–32.

De Munck J (2020) Sociologie et médiation. La voie peircienne. *SociologieS*. https://doi.org/10.4000/sociologies.14882

Diaz-Bone R (2013) Discourse conventions in the construction of wine qualities in the wine market. *Economic Sociology – European Electronic Newsletter* 14(2): 46-53.

Duterme T (2021) Comment émerge un indice boursier ? Histoire du BEL 20. *Revue Francaise de Socio-Economie 27*(2): 157–174.

Duterme T (2023a) The semiosis of stock market indices: Taking Charles Sanders Peirce to a trading room. *Valuation Studies*.

Duterme T (2023b) The engineering of stock market indices: Winners and losers. *Journal of Cultural Economy 16*(1): 17–31.

Edwards RD, Magee J and Bassetti WHC (2018) *Technical Analysis of Stock Trends*. Boca Raton: CRC Press.

Eymard-Duvernay F (2006). *L'économie des conventions, méthodes et résultats*. Paris: La Découverte.

Fama EF (1970) Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance 25*(2): 383–417.

Godechot O (2016) Back in the Bazaar: Taking Pierre Bourdieu to a Trading Room. *Journal of Cultural Economy 9*(4): 410–29.

Goldman RL and Papson S (1996) *Sign Wars: The Cluttered Landscape of Advertising*. New York: The Guilford Press.

Keane W (2018) On Semiotic Ideology. *Signs and Society* 6(1): 64–87. https://doi.org/10.1086/695387.

Lash PSM and Urry SLJ (1993) *Economies of Signs and Space*. New York: SAGE.

Lee B (2018) Deriving the Derivative. *Signs and Society 6*(1): 225–255.

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

Millo Y, Spence C and Valentine J (2023) Active fund managers and the rise of passive investing: Epistemic opportunism in financial markets. *Economy and Society 52*(2): 227–249. https://doi.org/10.1080/03085147.2023.2172252

Mortelmans D (2005) Sign values in processes of distinction: The concept of luxury. *Semiotica 157*: 497–520.

Muniesa F (2007) Market Technologies and the Pragmatics of Prices. *Economy and Society 36*(3) : 377–395.

Muniesa F (2011) Comment la Bourse fait ses prix. Ethnographie d'un cours d'action boursière. In Houdart S and Thiery O (eds) *Humains, non-humains*. Paris: La Découverte, pp. 176–190.

Muniesa F (2014) *The Provoked Economy: Economic Reality and the Performative Turn*. Routledge.

Nazareth R (2022) Stocks Take Breather After Furious Rally From Low: Markets Wrap. *Bloomberg* (retrieved from the Bloomberg Terminal).

Orléan A (1999) *Le pouvoir de la finance*. Paris: Odile Jacob.

Peirce CS (1931–1935) *Collected Papers*. Cambridge: Harvard University Press.

Petry J (2021) From National Marketplaces to Global Providers of Financial Infrastructures: Exchanges, Infrastructures and Structural Power in Global Finance. *New Political Economy 26*(4): 574–597.

Petry J, Fichtner J and Heemskerk E (2021) Steering capital: The growing private authority of index providers in the age of passive asset management, *Review of International Political Economy 28*(1): 152–76.

Pinzur D (2016) Making the Grade: Infrastructural Semiotics and Derivative Market Outcomes on the Chicago Board of Trade and New Orleans Cotton Exchange, 1856–1909. *Economy and Society 45*(3–4): 431–53.

Pinzur D and Duterme T (forthcoming) Market devices and infrastructures: How they differ and why it matters. *Journal of Cultural Economy*.

Schmitt W (18 January 2024) Passive Eclipses Active in US Fund Market as Assets Swell to $13.3tn. *Financial Times*. Retreived from https://www.ft.com/content/faf74f66-c4d6-45aa-bb30-0e73d523c547.

Simon HA (1997) *Models of Bounded Rationality: Empirically grounded economic reason*. MIT Press.

Smith CW (2011). Coping with Contingencies in Equity Option Markets: The “Rationality” of Pricing’. In Beckert J and Aspers P (eds) *The Worth of Goods*. Oxford University Press, pp. 272-294.

Tadjeddine Y (2016) Service financier. In Batifoulier P, Bessis F, Ghirardello A, de Larquier G, Remillon D (eds) *Dictionnaire des conventions: Autour des travaux d’Olivier Favereau*. Villeneuve-d’Ascq : Presses universitaires du Septentrion, pp. 375-380.

Viola T (2018) Comment naît un symbole ? Une comparaison entre Charles S. Peirce et George H. Mead. *Pragmata 1*: 60-88.

Woodhouse SA, Harminder Singh SB and Kuldeep K (2016) Invisible Walls: Do Psychological Barriers Really Exist in Stock Index Levels? *The North American Journal of Economics and Finance 36*: 267–78.

Zaloom C (2003) Ambiguous Numbers. *American Ethnologist 30*(2): 258-27