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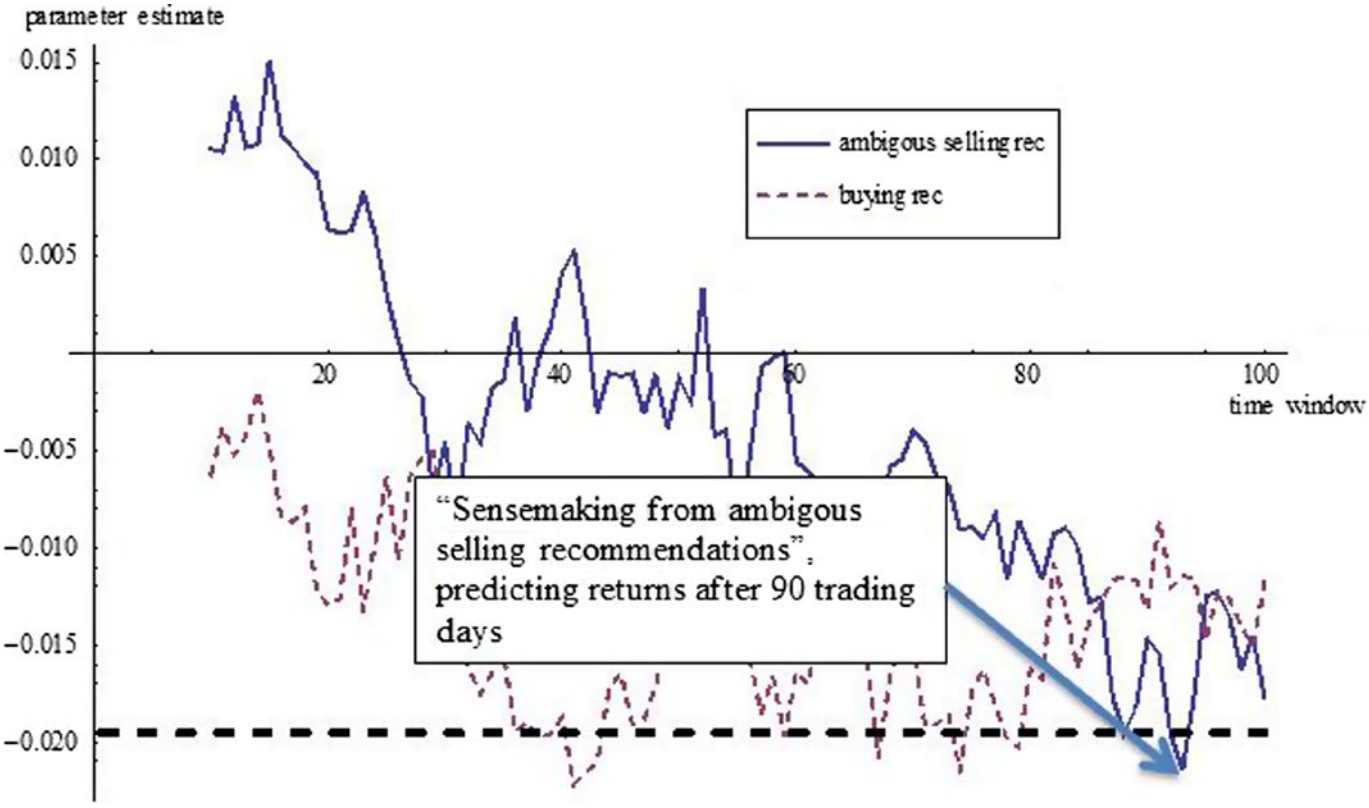

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Making sense in asset markets: Strategies for Implicit Organizations

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Abstract: While asset markets are traditionally left to economic inquiry, the paper shows that there is both a legal possibility and an incentive for organizing within such markets and for exercising market share-based strategic maneuvering. It proposes, based on sensemaking theory, Implicit Organizations in asset markets to exploit equivocality for momentum trading strategies. An Implicit Organization fulfills the criteria of an organization, while maintaining the image of a perfect market. Its members coordinate via market signals and fixed investment time windows to ensure positive returns to strategic maneuvering in asset markets. In support of hypotheses derived from sensemaking theory, results of empirical studies from two different investment contexts (Xetra and NYSE) provide evidence that equivocal analysts' recommendations predict investment returns after a fixed time period.

Subjects: Investment & Securities; Organizational Studies; Strategic Management

Keywords: asset markets; coordination; equivocality; organization; sensemaking; signaling

JEL classifications: L22; G12

Investment strategies in asset markets are the concern of an isolated field within the finance and economic literatures. They are neither attended to by scholars in strategic management nor by organizational science because investors, even if they act as investment firms, are treated as individuals acting in perfect markets. This paper challenges such abstinence by explaining a ubiquitous phenomenon

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ABOUT THE AUTHOR

Johannes M. Lehner is an associate professor at the Institute of Organization and Global Management Education, Johannes Kepler University Linz, Austria, where he also did his doctorate and *habilitation*. He conducted research at several international destinations, such as the University of Toronto, and he regularly acts as a visiting professor at various Latin American universities. His research has been published in International Journals such as Management Science and International Journal of Project Management, Managementforschung, and others. In addition, he (co-)authored several books, and is preparing now the second revised edition of a book on status in organization with Wiley. His theoretical interest is focused on power, status, identity, and sensemaking processes in and around organizations, which he applies to various empirical contexts and phenomena such as strategies, coordination, and decision-making in firms and markets.

PUBLIC INTEREST STATEMENT

A still not resolved puzzle in financial economics is the ongoing success of momentum trading strategies in asset markets. As a novel explanation, the paper proposes an Implicit Organization which maintains the image of a perfect market. The paper shows how this is possible via market signals in a legal way. Thus derived theoretical hypotheses are tested and supported empirically in two different investment contexts (Xetra and NYSE). Equivocal or ambiguous analysts' recommendations predict investment returns after a fixed time period. Thus, the paper challenges the image of a perfectly functioning market of publicly listed assets, which is dominant not only among investors, but also in the general public. Especially under conditions of high equivocality or ambiguity, market explanations have to be supplemented or even replaced through examining coordinated and cooperative sensemaking among market actors.

in asset trading as a result of organizing and subsequent strategic processes of seemingly independent acting traders. The success of momentum trading, as the phenomenon to be explained, poses an anomaly from the perspective of efficient markets, but can be shown to be a natural outcome of organizing processes and of strategic maneuvering. Accordingly, the aim of this paper is to describe a new organizational form, the "Implicit Organization" (IO), for explaining the sustained profits of momentum trading and to be superior to other possible explanations, such as "herding" or "tacit collusion", and to provide an empirical test for this.

In explaining outcomes as results of organizing processes, I am referring to Karl Weick's (Weick, 1979, 1995) sensemaking perspective of organizations, which I use as the prime theoretical foundation. Somewhat paradoxical, financial markets provide an ideal field for applying this perspective. On the one hand, they fulfill the requirements of perfect markets like no other market by providing full information for all market participants and by ongoing trading in large volumes, which ensures prices reflecting available information at all points in time. On the other hand, the more information is available, the higher the chances of contradictions between single chunks of information, the more selection of information is necessary, and the bigger the challenges of retaining relevant information, all of which calling for sensemaking processes.

The paper proceeds as follows. The first section lists the minimal defining criteria for organizations vis-à-vis markets as a foundation for the proposition of the Implicit Organization. The second section describes sensemaking processes in asset markets, which have been examined in a wide range of studies, but so far mainly from a sociological perspective. Building on this, the central hypotheses of this paper will be developed in the third section, starting from the description of the strategic maneuver to exploit price movements, followed by arguments why such a maneuver only can be implemented by an organization (not a "herd") which is invisible (implicit) to outsiders (no full organization). Finally, the paper culminates in an empirical test with a sample of Xetra-listed firms (Germany) and a sample of NYSE-listed firms.

1. Distinguishing organizations from markets

"Market failures" and "anomalies" in seemingly perfect markets of various kinds are the rule, rather than the exception, which have been reviewed extensively (e.g. Prechter & Parker, 2007), including bestselling books by Nobel laureates in economics (Akerlof & Shiller, 2009) and need not be iterated here. Still, neither researchers nor practitioners refrain from speaking of markets in such cases, thereby essentially assuming that such market failures are the result of uncoordinated actions of isolated agents or of firms (e.g. investment funds), who act like individuals with only marginal influence on the market. Because beyond markets, "herding", "band wagon effects", or "tacit collusion" have been proposed previously as possible explanations for such anomalies, it is necessary to establish a set of minimal defining criteria for organizations to clearly distinguish it not only from markets, but also from the above cited concepts, which are the following: a common and exclusive goal, a coordination mechanism, and a membership mechanism.

1.1. Common goal

First, the existence of at least one common goal or a set of common goals to which members subscribe to some extent is at the core of virtually all definitions. This criterion has been used already by Parsons (1960) to distinguish organizations from other social systems. Here, I specify goals to be "exclusive". This signifies goals which are only meaningful (in the sense of being instrumental for some higher level goal, such as sustained profits, survival) if not followed by all market participants. This addition may appear deliberate, however, it implicitly holds for all meaningful goals of firms. For example, both from a competitive perspective (Porter, 1980) and from a resource-based view (Barney, 1991), strategic goals may provide sustained profits only if they promise some unique position within the market (e.g. providing the best quality). The addition excludes very abstract goals like "earning money", which also holds as a common goal within markets. In this paper, focusing on momentum trading, a common goal is to exploit price movements as a result of coordinated trading.

1.2. Coordination mechanism

For the latter, members of an organization agree that they have to and will cooperate to reach the goal and therefore are prepared to coordinate their activities (Thompson, 1967). For this, they must be able to refer to an institutional arrangement which enables and constrains the behavior of social actors (Hargrave & Van de Ven, 2006) and which results in at least one coordination mechanism. Consequently, the dominant coordination mechanism distinguishes organizational forms (Mintzberg, 1979). All coordination mechanisms are based on some form of informational exchange. In this paper, I will focus on market signals as the main source for coordination, as well as for establishing membership.

1.3. Membership mechanism

Institutional perspectives on organizations (e.g. Scott, 2001), as well as legal and economic views (Williamson, 1973) emphasize formal arrangements, such as long-term contracts, both for coordination and, implicitly, as membership mechanisms. Contracts imply some form of hierarchical relationship between individuals as the main defining criterion for organizations. System theorists rather will search for the existence of a clear boundary between the organization as a system and its environment (Aldrich, 1971; Luhmann, 2010). For this, contracts are useful, but not necessary. Many organizations do not formulate any contracts at all and still are able to distinguish between members and non-members. In the latter instances, boundaries are rather constituted through psychological constructs, such as identity (Albert & Whetten, 1985), which allow discriminating between those who enact themselves as belonging to the organization and all others. In any case, the existence of a boundary and of a membership mechanism represents two sides of the same coin because a membership mechanism is only meaningful if it excludes non-members, thereby, implicitly defining a border of the organization. Also membership has to be established beyond cooperation in single transactions to assure some stability. As will be shown in this paper, the restriction of membership is essential for the explanation of sustainable profits in momentum trading.

To conclude, the three conditions outlined above are both necessary and sufficient to distinguish organizations from other recurring relationships, especially markets, to identify the boundary between organization and its environment, and thereby for distinguishing members from non-members. It is important for the rest of the paper that for this purpose no reference to contracts, hierarchy, division of labor, common identity, or other frequently used criteria for organizations is required. Rather, the latter features of an organization may be explained as consequences of fulfilling the three conditions in a certain way. For example, if the set of common goals includes efficiency, a certain division of labor and a hierarchy (Simon, 1962) will likely follow.

Implicitly and without justification, organizational research so far has assumed that membership in organizations has to be visible, both to insiders and to outsiders of the organization. If we relax this assumption, we are able to locate different organizational arrangements together with the Implicit Organization within a two-dimensional space (Figure 1) spanned through visibility and the

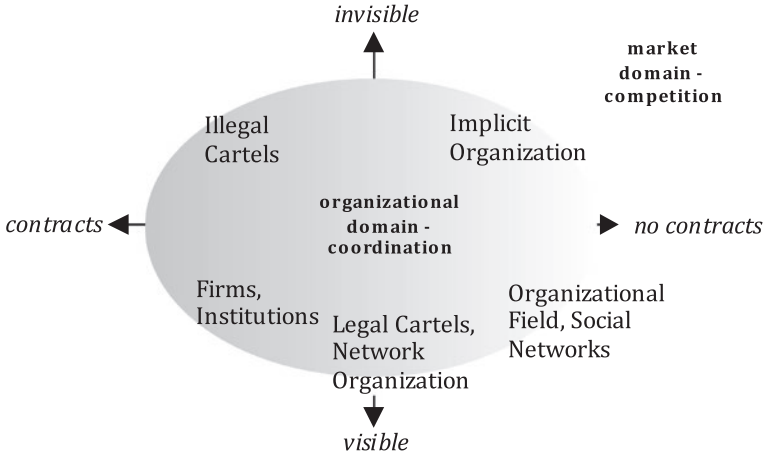

Figure 1. Types of organization (within the shaded area) and non-organizations (outside) distinguished through formalization (contracts) and visibility of their membership mechanism.

degree of using contracts to define membership. A similar distinction of community services, based on awareness, can be found already in Litwak and Hylton (1962). This leads to four quadrants, which all border to the market: in full-fledged organizations (firms, institutions etc.) formal contracts operate as the dominant membership mechanism, for example, employment contracts, which define membership in a visible manner. The continuum of the horizontal axis reaches further over legal cartels with explicit, although not necessarily formal contracts, network organizations, and quasi firms (Luke, Begun, & Pointer, 1989) to organizational fields (DiMaggio & Powell, 1983, p. 148), which do not fulfill the other two defining criteria for organizations. These arrangements, however, have in common that their membership is visible. This is different for organizations which also use rigid contracts, but which are completely hidden to outsiders, as it is the case for criminal organizations, illegal cartels, or price conspiracies (Baker & Faulkner, 1993). Obviously, their lack of visibility does not imply a lack of organizational coupling. On the contrary, such organizations often rely on extremely tight control and coordination through supervision and peers.

Finally, the Implicit Organization is both invisible and lacks explicit contracts, and is therefore easily misrepresented as a market, herding, or as tacit collusion, thereby leading to market explanations where organizational explanations would be appropriate. I will show in the following that this type of organization is not only possible, but necessary to explain phenomena as those focused in this paper. The next section describes coordination and membership for this type of organization.

1.4. Signaling for coordination and membership

A potential coordination mechanism for the Implicit Organization (IO) has been already suspected by economist James Friedman in 1971, but only in respect to tacit collision, that is without distinguished membership between colluding agents:

> Considerable dissatisfaction has been voiced over the years with this equilibrium as a viable outcome in oligopoly. Even though out and out explicit collusion is difficult in a nation having anti-trust legislation, because agreements are not legally binding and even meetings to attempt agreement may be illegal; still it seems unsatisfactory for firms to achieve only the profits of the Cournot point when each firm must realize more can be simultaneously obtained by each. This line of argument often leads to something called "tacit collusion" under which firms are presumed to act as if they colluded. (Friedman, 1971, p. 11).

Later on, tacit collusion has been analyzed theoretically (Amelio & Biancini, 2010; Escrihuela-Villar, 2009) in experiments with computer simulation (Anderson, Freeborn, & Holt, 2010; Macy, 1991) and by observing price movements in markets (Knittel & Stango, 2003). McCutcheon (1997) argues that the Sherman Act (US anti-trust legislation), rather than eliminating collusion, even provides an incentive for tacit collusion because direct renegotiation of collusive agreements is too costly for firms compared to staying committed to collusion.

Direct exchange for coordination, common also between organizations (Levine & White, 1961), is visible and, therefore, has to be limited to transactions which do not put the appearance of the market at stake and which are legal. The above cited work of James Friedman provides some hints how coordination may work in an invisible manner: "How they do this [remark: to tacitly collude] is not entirely clear, though one explanation is that their market moves are interpretable as messages" (Friedman, 1971, p. 11).

Such kind of messages, often characterized as "signaling", found interest by economists as a way to exchange information and to coordinate without explicit and direct coordination. We speak of signaling whenever a sender emits a signal and a receiver or an eavesdropper performs an act based on this signal. Under a wide array of circumstances, both through evolutionary processes and through reinforcement learning, so-called signaling systems likely emerge (Lewis, 1969; Skyrms, 2010). Basically, this means that after some time the receiver correctly responds to signals of the sender. Signaling cannot be bounced from markets and, therefore, is a potential cooperation mechanism which preserves the

appearance of a market. Market participants actively signal price settings (Davis, Korenok, & Reilly, 2010), salaries in job markets (McCormick, 1990; Spence, 1973), and other participants interpret signals to adapt their behavior (e.g. Choi & Sias, 2009).

1.5. Co-evolution of membership and sensemaking

Even as signals allow to tacitly collude, this only partially fulfills the criteria of an organization. However, it will likely evolve into an Implicit Organization under conditions which will be developed in the following. While tacit collusion may involve all parties in a market and while colluding parties may self-select more or less randomly, with fluctuations from one time period to the next, I will propose that it is highly probable and even necessary under certain conditions that a stable group of parties will emerge to coordinate its market activities in an implicit way and which, therefore, fulfills all criteria of an organization.

Signaling serves as a powerful coordination device for Implicit Organizations, especially if signals can be interpreted correctly only by its members. Such selective understanding has been described as a unique feature of a clan vis-à-vis markets and bureaucracies (Ouchi, 1980, p. 137). Cognitive models and tools for analysis shared in a group facilitate such selective understanding, for example, to make sense of market data (Abolafia, 2010). Collusive parties even utilize signals from nature, like the phases of the moon, to designate the low bidder in auctions (Smith, 1961, cited in Garratt, Tröger, & Zheng, 2009). In such cases, membership mechanism and coordination mechanism may converge and become inseparable. The resulting coordination "emerges", a phenomenon also observed in cross-business-unit collaboration "whereby small, serendipitous events that are difficult for even experienced executives to recognize can lead to significant system-level performance" (Martin & Eisenhardt, 2010, p. 295). The thus emerging organization enhances the ability for making sense of equivocal signals from the outside. Thus, common sensemaking may co-evolve as a membership mechanism and as the main competence of the organization vis-à-vis individual agents.

To serve as a membership mechanism, signals have to be coded in a way which discriminates members from non-members, implicitly defining a border of the organization. Although the signals are received by outsiders as well, the latter will interpret them either wrongly or respond correctly only at a random basis. The so-called replicator dynamics as the most basic form of evolution of signaling systems (Skyrms, 2010) provides an illustration of such a discriminating mechanism. In the simplest case, a population refers only to two states, two corresponding signals, and two correct acts as responses to these signals. Simulating the replicator dynamics it can be shown that in such a situation two signaling systems (a "correct" one and an "incorrect" one) will evolve as equilibria and three other possible states which are unstable (Skyrms, 2010, p. 11). Now, the Implicit Organization can be imagined as comprising those members of the population who produce the "correct" signaling system. All others are outsiders.

As languages evolve over thousands of years, signaling systems require thousands of iterations to converge to equilibrium. However, we know of specific jargons used by sub-cultures which develop and change within much shorter time spans. Experiments demonstrate that single language patterns may develop quickly through interaction (Steels, 2006) and that signaling is signaled (Scott-Phillips, Kirby, & Ritchie, 2009), thereby establishing codes for single occasions, which specialized agents use to monitor developments, like fads and fashions in the cultural industry (Hirsch, 1972). In small groups, specific behavior interchange patterns (Shelly & Shelly, 2009) emerge in short time periods and symbolic markers are used to distinguish in-groups from out-groups (Efferson, Lalive, & Fehr, 2008).

Other than animals or even bacteria which signaling theorists use as exemplars, human beings do have a history before starting a signaling game. Therefore, signaling dynamics may be sufficient to define membership, but can be supplemented, accelerated, and sometimes replaced by other mechanisms. Most important are such interrelated phenomena as embeddedness in social networks, reputation, and status, which is already captured in the Aristotelean concept of *endoxa*: a set of opinions or beliefs (in Topic; that which is plausible) and a group of "illustrious" persons (in Topic

and Nicomachean Ethic) (Vega Renon, 1998). This translates into the modern concept of sensemaking (Weick, Sutcliffe, & Obstfeld, 2005), which is, on the one hand, driven by plausibility and which is, on the other hand, shaped by identity as a form of membership.

Although embeddedness and dense ties within social networks are necessary for establishing membership, it shall be noted that for cooperation, later on loose ties, as in Implicit Organization, may be sufficient or even more productive (Martin & Eisenhardt, 2010). For example, a strong community of practice establishes a bond and members maintain their sense of community when spreading into different firms, possibly throughout the world (McDermott & Archibald, 2010).

1.6. Nature of the Implicit Organization as a construct

As some scholars generally speak of "degrees of organization" (e.g. Brunsson & Sahlin-Andersson, 2000), Implicit Organizations do not represent a generic nominal construct. IOs may gradually emerge from a market, over, for example, a community of practice, to an IO. The present distinction does not exclude the possibility of overlaps. Also, an Implicit Organization remains invisible even if it builds on visible existing social relationships. Nevertheless, a specific threshold always exists at the point where the common goal because being exclusive, as in momentum-trading, requires the distinction between members and non-members to maintain positive returns to the strategy. Further, neither organizational identity (Albert & Whetten, 1985) nor full members' awareness of their being a part of an IO are necessary. Empirical inquiry may either show that identity gradually emerges the longer an IO exists or that all defining criteria of an IO are met without any consciousness of its members. An analogy may help to illustrate this point: as human beings, we do not assume that individual ants are aware of being members of an ant colony. At the same time we do not believe in an "invisible hand" governing an ant market, but even observe team work and division of labor in an organization (Anderson, 2001).

2. The sensemaking perspective applied to financial markets

"A central theme in both organizing and sensemaking is that people organize to make sense of equivocal inputs and enact this sense back into the world to make that world more orderly" (Weick et al., 2005, p. 410). Translated to the world of asset trading, this citation sets the stage for the central proposition of this paper. Rephrasing the above, I will develop the following argument: traders surely are motivated to "make their world more orderly" and to make sense of information about their investment opportunities (Lundberg, 2000) and therefore, if possible, organize to make sense of equivocal market signals and enact this sense back to make price movements profitable in a systematic way.

Following the sensemaking perspective, I will show that the ultimate way to do this is to "organize". Before that, it has to be acknowledged that asset markets impose significant barriers to "organize", especially for producing "orderly" price movements. Such attempts are either prohibited by law and by stock exchange regulators (e.g. the Securities and Exchange Commission [SEC]) as "insider trading", "market manipulation", or "illegal collusion". Even if such regulations do not apply, overt influencing of asset prices through single firms is likely qualified by other market participants as not reflecting "market forces", instead, for example, as part of a take-over bid. Therefore, investors who need to represent market forces have to refrain from establishing a full organization in asset markets to coordinate their activities. Because of this, communication and narrative are restricted. Accordingly, Lundberg and colleagues have shown in a series of studies (reported in Lundberg, 2000) how traders make sense of market data through their individual reasoning. For hypercompetitive or high-velocity environments, which include at least in some parts also asset markets, Bogner, Barr, and Robinson (2000) propose a form of "adaptive sensemaking" to use real-time information for fast decision-making and which might even perpetuate hypercompetition. Still, a restriction to one's own interpretation of data represents a major challenge for sensemaking because communication is a "central component of sensemaking and organizing" (Weick et al., 2005, p. 413) and in strategic practice (Fenton & Langley, 2011).

Of special relevance for a sensemaking perspective to be developed in this paper are studies into the impact of equivocality. From an equilibrium economist's perspective, equivocality should be avoided. Indeed, negative effects of equivocality due to differences of opinions around earnings announcements have been detected (Berkman, Dimitrov, Jain, Koch, & Tice, 2009) and the investors have been found to react less to news on diversified firms than to news on single-business firms because of more "complicated" information processing for diversified firms (Cohen & Lou, 2011). Taking an opposing position, Zuckerman (2004) is the first to add ambiguity (which can be interpreted as a form of equivocality) as an explanation for the amount of trading activity. He shows that ambiguity due to incoherent classifications of stocks leads to increased trading volume and increased volatility of stocks. Similarly, venture capitalists, in contrast to consumers, do not avoid ambiguously labeled firms, which have been shown for software firms by (Pontikes, 2012). In summary, research so far produced contradicting results in regard to the impact of equivocal information on trading, dependent on the perspective taken by research.

Unlike the above-cited quantitative studies, qualitative research especially shows how equivocality requires rich communication among actors. Despite severe limitations for communication and narrative beyond mere information exchange, sociologists propose markets to form networks of mutually adapting participants (Fligstein, 2001; White, 2002), instead of being populated only by isolated competitors, who are solely concerned with their customers or suppliers. Ethnographic studies of traders in financial markets (Knorr Cetina & Bruegger, 2002) show abundant frequency and variety of communication between traders. Further, these accounts also suggest how communication among traders serves sensemaking. They less communicate face-to-face within investment firms, but utilize open phone lines, intranets, specialized electronic communication channels (e.g. Thomson Reuters Messenger), and dedicated information tools, such as Trading Terminals provided through Thompson Reuters, Bloomberg, Telerate, Electronic Broking Services (EBS), and other media channels. Traders have translated their bodily expressions, which they developed on trading floors for communicating their interpretation of price information, to electronic media (Preda, 2007; Zaloom, 2003). These devices enable coordinated observation, often synchronous trading (Saavedra, Hagerty, & Uzzi, 2011), and communication to produce "identities based on interlocking time dimensions, and the observation of a common object (i.e. the on-screen market)" (Knorr Cetina & Bruegger, 2002, p. 920). A sophisticated, still informal, and largely implicit system of rules, of "codes of honor", and of reciprocity emerges among traders, followed by institutionalized expectations, symbols, and rituals (Smith, 1999). Such exchanges are both competitive and cooperative. Newcomers in trading firms are encouraged to "accumulate knowledge of the strategies of other players in the market by watching the changing quantities" (Zaloom, 2003, p. 268). While remaining informal and implicit, all features of sensemaking and organizing appear to be present within a certain community of traders. Coming from a sociological perspective, this is characterized through Knorr Cetina and Bruegger as a "global microstructure" and by Stark (2009) as "interpretive communities in the trading room" (p. 124).

2.1. The analysts' role

Whereas professional traders do have direct access to all kinds of "fundamental data", provided by the above described services, analysts still play a key role as intermediaries in the information flow because their role adheres to a simple logic of division of labor. While traders usually deal with a portfolio of diverse assets, their ability to collect and process all available information about these assets is limited. In contrast, analysts specialize to a rather homogenous set of assets, thereby being better able to acquire "full information", although often biased through investor sentiments (Corredor, Ferrer, & Santamaria, 2013), which they not only communicate to their clients ("sell-side" and "buy-side"), but, to some extent, also to the general public. Therefore, traders are able not only to utilize analysts' recommendations as signals for their individual decisions, but also for coordination.

Despite the already mentioned fact that in efficient markets analysts should not affect price movements at all, the analysts' impact is documented in several empirical studies (Rao, Greve, & Davis, 2001; Schipper, 1991; Zuckerman, 2004), including effects on board decisions of analyzed

companies (Wiersema & Zhang, 2011). Existing studies of changes in stock returns after analyst recommendations focus on short-term movements (e.g. within 5–10 days around earnings announcements [Berkman et al., 2009; Lin & McNichols, 1998]). An exception delivers Womack (1996), who tested the effects of univocal changes of analysts' recommendations (adding or removing from sell/buy–lists). He found expected changes between −5.8% (added to sell list change) and +3.1% (removed from sell list change) of 6-month excess return.

2.2. Equivocal signals

Norms of rationality, which are also implicitly assumed in the above-cited studies, suggest that investors should buy stocks for which analysts univocally and clearly issue buying recommendations[1]. Paradoxically, however, investors believing in the efficiency of financial markets will not buy such stocks for the purpose of short-term momentum strategies because all information which analysts use for their recommendations should be already represented in the price of the stock at the time of issuing these recommendations (which is the "semi-strong" version of the Efficient Market Hypothesis (Fama, 1976)). Believers in efficient markets never will see "upward potential", at least in the short and medium term. A different logic applies for stocks which are evaluated equivocally. Such has been conceptualized in previous studies as a lack of coherent classification (Zuckerman, 2004), or through diversification into different industries (Cohen & Lou, 2011), all of which reflecting rather stable features of stocks. In contrast, here equivocality is of interest which is suspect to change over time because only variable features of stocks or assets can be exploited for a momentum trading strategy. Such equivocality is produced through diverging recommendations of different analysts, all covering the same stock, or through downgrading/upgrading between different degrees of buying/selling recommendations. For a certain time window, and in contrast to stocks with univocal recommendations, stocks with equivocal recommendations simultaneously contain "upward" and "downward potential". This logic even applies to investors believing in efficient markets because equivocal information hardly can be represented in prices. The latter fact is also at the core of transaction cost economics, where ambiguity (labeled as uncertainty by economists) is seen as a major force to favoring hierarchical instead of market solutions to governance problems (Williamson, 1973).

3. The Implicit Organization implementing a strategic maneuver

The above observations clearly show that markets are not only guided through price information, but through a wealth of media and communication channels. Building on this and going beyond the sociological view of "global microstructures" (Knorr Cetina & Bruegger, 2002) or markets of networks (White, 2002), the application of the sensemaking perspective allows to derive more far reaching and concrete hypotheses, which will be done in this section. The logic for this develops along the following two arguments. First, to trigger price movements, significant market share is necessary, which poses the first incentive to build an organization. Because the latter is prohibited, the organization has to be invisible. Third, related phenomena such as "herding" or "tacit collusion" cannot explain the sustained positive returns of such a strategy.

3.1. A market share-based strategic maneuver

If someone possesses significant market share without others knowing about this market share, it can signal an upward trend to other market participants in a seemingly perfect market, thereby motivating further upward trends financed through the latter, which subsequently can be exploited by the former. The ability to "administer" prices has been proposed as a motivation for firms to achieve large market share some decades ago already (Buzzell, Gale, & Sultan, 1975, p. 98).

To implement such a strategy in an environment where the overt exercise of market share for price manipulation is prohibited, investors have to solve the following paradox: making an initial investment which is high enough to have an impact on prices and make sure that this initial investment is enacted by others to be the result of the sum of many small-scale and independent investments. In other words: exercising a market share-based strategic maneuver without appearing as such (i.e. preserving the image of a perfect market). Then, other investors will see price movements with high likelihood as a market signal for further upward movements, thereby triggering more

investments into the stock. The latter is an empirical fact, regardless of its interpretation as "noise trading", "positive feedback trading", or "irrational herding". This paradox can be resolved by coordinating with other investors who have the same goal of short-term momentum trading. Such coordination has to be managed in a way which is not visible to those who are not part of this coordinating group.

3.2. Excluding herding and tacit collusion

It remains to be shown that the Implicit Organization qualifies, indeed, as an organization in the above sense, with boundaries and a distinction between members and non-members, instead of being just a "herd" (Blasco & Ferreruela, 2008; Boyson, 2010; Chen, 2013; Choi & Sias, 2009; Hoitash & Krishnan, 2007; Lütje, 2009; Nofsinger & Sias, 1999) or an incident of "tacit collusion" (Amelio & Biancini, 2010; Anderson et al., 2010; Dal Bó, 2007; Davis et al., 2010; Escrihuela-Villar, 2009; Knittel & Lepore, 2010; Knittel & Stango, 2003; Macy, 1991; Muren & Pyddoke, 2006; Shor & Chen, 2009) as it serves traditional economic explanations for phenomena similar to the proposed strategy here. Collusion has the goal to either artificially lower or to increase prices, dependent on the role the colluding parties play (seller versus buyer). For example, colluding sellers always have the goal to manufacture prices as high as possible. Asset traders, in contrast to producers or service providers, always do both: buying and selling. Therefore, if tacit collusion occurs in asset trading, it is indistinguishable from herding. As a consequence, it is sufficient to show that a herd is unable to implement the above proposed strategy. First, if it would be able to do so, this would be an incident of rational herding leading to positive returns on average. Although herding behavior sometimes resembles the strategy of a rational planner (Goldbaum, 2008), it can be easily shown that herding in the strict sense never can be rational because herders both would share wins (e.g. joining upward trends) and losses (joining reversion to the mean). For momentum trading, positive returns are only possible by leading the herd, for example, through leaving the herd before all others or to cite economic jargon: "'early' momentum buyers impose a negative externality on 'late' momentum buyers" (Hong & Stein, 1999, p. 2146). And Hirshleifer (2001) maintains that "similar behavior is not irrational per se, but some groups of investors do poorly" (p. 1562). Rational herders would take this fact into account. But if all herders want to be "early", no herd exists anymore. As a conclusion, rational herding is an oxymoron and is unable to explain positive returns, while the sustained existence of irrational herding remains unexplained. Although the above-cited economists (Hong & Stein, 1999) suggest a solution by introducing two types of herds—"momentum traders" (similar to "chartists" or "trend-followers") and "newswatchers" (similar to "fundamentalists"), with the "newswatchers" losing money always (as long as the net supply of the asset is zero)— they are unable to explain why "newswatchers" are not turning into momentum traders.

In contrast, the above can be explained—and it can *only* be explained—when the "herd" is assumed to have a boundary, thereby distinguishing between members and non-members, which then fulfills all defining requirements of an organization (beside goals and coordinated action). Positive returns are possible only if members of the Implicit Organization expect that there are non-members who take the losses of the reversed trend. By definition, however, the Implicit Organization does not fulfill the "external attribution assumption" made by King, Felin, and Whetten (2010), which requires organizations to be recognized by other actors. The existence of a boundary also guarantees that positive returns of the Implicit Organization may persist on average, which contradicts the Efficient Market Hypotheses. The latter would treat this as an anomaly which vanishes if exploited fully.

To finally derive testable hypotheses, coordination mechanisms have to be proposed for the Implicit Organization and its implementation of a momentum trading strategy. Following Thompson (1967, p. 56) in a straightforward manner and given pooled interdependence, members of the Implicit Organization will coordinate in a standardized way. For the strategy proposed here two mechanisms are sufficient. As the first coordination mechanism for triggering investments, equivocal analysts' recommendations have been discussed above. The Implicit Organization is proposed to be the tool for "making sense of such equivocal inputs". For the second coordination mechanism,

members of the Implicit Organization have to agree on an investment time window with fixed length. If selling off is exercised based on individual decisions, only single members can take advantage of increased prices, whereas others would disinvest after prices are already reverted to the mean again (mean reversion is also a well-documented phenomenon in the literature, e.g. Bessembinder, Coughenour, Seguin, & Smoller, 1995; Lam, Wong, & Wong, 2006). Clearly, momentum trading is only profitable if exercised at appropriate times of entry and exit (Badrinath & Wahal, 2002; Lee & Swaminathan, 2000). Also, fixing the time window's length facilitates coordination within the Implicit Organization, as it has been shown for full organizations in highly dynamic environments (Brown & Eisenhardt, 1998). Together, equivocal analysts' recommendations and the proposition of a fixed time window lead to the following hypothesis.

> **Hypothesis 1**: There exists an investment time window for which equivocal analysts' recommendations predict positive returns more than univocal buying recommendations.

Note that Hypothesis 1 is formulated in a way to rule out mere attention and media effects (Barber & Odean, 2008; Engelberg & Parsons, 2011; Engelberg, Sasseville, & Williams, 2011), which would predict no difference between different types of recommendations or a stronger positive impact of univocal recommendations. The impact of equivocal recommendations in contrast to univocal recommendations can only be explained through the existence of an organization and its strategy. Note also that the Efficient Market Hypotheses allow for two result patterns in regard to the effect of analysts' recommendations. Either no effect at all (because all information is already represented in prices) or if there is an effect of recommendations, it should be highest for univocal recommendations (if not all information is reflected in prices immediately). Further, Hypothesis 1 predicts the existence of a fixed time window, but leaves open its length because there is no theoretical rationale which would allow the deduction of its concrete length for the outside researcher (this does not exclude knowledge about the time window *inside* the organization). Only certain lower and upper bounds can be formulated to restrict empirical search for the time window: the time window has to be long enough to avoid sudden jumps of asset prices, which might raise concerns about insider trading. Simultaneously, it should be short enough to minimize the risk of external shocks which could work against the above-described momentum strategy. This suggests a constant time window between three months and half a year, which is in line with findings of previous studies on related issues (e.g. Womack, 1996).

Regardless of the specific length of the time window, the second theoretically proposed coordination mechanism allows to deduce a hypothesis which is nested within the first hypothesis (applies only if the first hypotheses is supported) and, by being more specific, it provides a stronger test of the existence of a strategically maneuvering Implicit Organization.

> **Hypothesis 2**: There exists *exactly one* time window for which equivocal recommendations predict returns more than univocal buying recommendations.

Although Hypothesis 2 is not a necessary requirement for the existence of an Implicit Organization, its support would exclude alternative explanations, for example, that the observed upward price movements after equivocal recommendations are the result of herding only. Although herding could be triggered by such signals as well, it cannot explain the observation that the "herd" divests after a fixed time window, without an additional signal. Rather, herding investors will follow any signal which suggests price movements in a certain direction, regardless of timing.

4. Method

4.1. Samples

To test these hypotheses and to exclude a sample bias, I chose two different investment contexts: the first context is represented through the universe of stocks listed at Xetra, which is the electronic division of the Frankfurt Stock Exchange, as the most important outlet for stocks in Germany. The

study covers the time period between 1 November 2009 and 1 September 2011 for which historical records of analyst recommendations have been available (22 months). A two-stage sampling procedure should avoid a bias toward firms with increased attention to the public and to exclude mere attention effects. The first step selected all firms covered by published analysts' recommendations at least once within the above time period, which was the case for 171 firms. The second step sampled out of the remaining population of Xetra-firms which are not covered by analysts (158). The resulting total sample comprises 329 Xetra-firms.

The New York Stock Exchange (NYSE), as the still most important trading location, provided the second investment context. To construct a sample comparable to the Xetra sample and to keep computing time for extensive analysis (see below) in manageable limits it appeared to be sufficient to select 10% of the population, which led to a sample of 340 NYSE-firms. Because published coverage of analysts per time period turned out to be less frequent than for Xetra-firms, a longer total time interval between 1 January 2008 and 1 September 2011 (44 months) is covered in this sample.

4.2. Dependent variable

Most previous studies on investment strategies use daily returns or cumulated daily excess returns as dependent variable (e.g. Engelberg et al., 2011; Zhang & Wiersema, 2009). Because in this study we are only interested on returns within a certain time period (window "*w*") and only on returns due to price movements (excluding dividends), the variable which should reflect the hypothesized investment strategy best is the ratio between price at time $t + w$ and the price at time t as the dependent variable:

$$\text{Ret}_{t+w} = \text{price}_{t+w}/\text{price}_t$$

4.3. Independent variables: Analysts' recommendations

A previous study by Womack (1996) into the investment value of analyst recommendation changes used a database for paying subscribers (First Call). Somewhat in contrast, for the purpose of this study, analysts' recommendations as they are published, especially via internet websites appeared to be appropriate. Utilizing publicly available and free of charge data sources assures that the same data can be used by a wide range of investors easily as signals and that their use by investors does not violate any legal restrictions. Public sources, for example, TV shows, have been examined already in regard to attention effects (Engelberg et al., 2011). For the purpose of this study, two internet sources contained rich and appropriate data: for the Xetra sample we collected analysts' recommendations from www.aktien-meldungen.de, which distinguishes buying and selling recommendations, beginning with December 2009. To allow for examining price movements following the recommendations, only analyst reports until February 2011 have been included, leading to 15 time intervals for analysis. In total, 273 buying recommendations for firms in the sample and only 4 univocal selling recommendations ("hold" recommendations have not been considered) have been identified. The extremely low number of univocal selling recommendations may be due to an optimistic bias of analysts' recommendations (Scherbina, 2008). To measure equivocality versus univocality of forecasts, I split the stream of recommendations in time windows of one month length and I defined ambiguity as the simultaneous existence of at least one selling/buying recommendation and the opposite recommendation. While such a conceptualizing of equivocality is in contrast to previous views of ambiguity in financial markets as the absence of rules, standards, and requirements for access to trading platforms (Easley & O'Hara, 2010), it is in line with views of equivocality and ambiguity in organizational theory (Weick, 1979; Weick et al., 2005) and strategic management research (Mosakowski, 1997; Plambeck & Weber, 2010). Here, I use the terms equivocality and ambiguity synonymously and I follow Davis, Eisenhardt, and Bingham (2009) who define ambiguity as a "lack of clarity such that it is difficult to interpret or distinguish opportunities" (p. 424), which these authors measure as the proportion of misperceived opportunity features in their simulation model. For the time windows of this study and for stocks in the sample, 129 recommendations have been identified to be equivocal.

A slightly different data source has been available for NYSE-listed stocks. There, analysts' recommendations are collected through "Briefing.com" and listed on www.finance.yahoo.com. Based on the "Institutional Brokers Estimate System", these recommendations are classified into five categories ("strong buy", "buy", "hold", "underperform", and "sell"). This sampling resulted in 211 univocal buying and 33 univocal selling recommendations. The measurement for equivocality used for the Xetra-stocks did not apply because of the already mentioned less frequent analyst reports. Few simultaneous buying and selling recommendations within one-month window appeared. Therefore, this type of measure also does not qualify as a signal for investors. Instead, the following measure has been used for NYSE-stocks: ambiguous selling (upgrading between two grades of selling recommendations), which appeared in 178 cases. In contrast, ambiguous buying recommendations (downgrading between two grades of buying recommendations) have not been considered, again, because of a lack of sufficient cases (30).

The final measure is provided through three dummy variables being set to 1, if recommendations for a stock in a certain time window have been univocally buying recommendations (univBuy), univocal selling recommendations (univSell), or equivocal (EquRec), and 0 otherwise.

4.4. Controls

Because the study analyzes effects of temporally changing features of stocks, frequently used controls, especially fundamental data of underlying companies, which are rather stable over short periods, have not been considered. However, a previous study showed effects of recommendations on subsequent trading volume (Zuckerman, 2004), as well as effects in the opposite direction (Lee & Swaminathan, 2000). Therefore, I included the mean of the logarithms of trading volume (LogVol) two months prior to the trading period as a control. Further, because of the obvious existence of exogenous shocks which affect the returns of all stocks, I created a dummy variable for each monthly time window (14 in the Xetra case and 39 in the NYSE case).

4.5. Analysis

Because of the nature of the dependent variable as a fraction of the initial stock price, the normality assumption and Gauss–Markov assumptions for a linear model and for ordinary least square (OLS) regression cannot be expected to be met. A preliminary OLS regression indeed showed substantial deviations of residuals from normality. In such cases, a generalized linear model (GLM) is appropriate. A generalized linear model estimates parameters β in a model of the following form

$$y = g^{-1}(\beta_0 + \beta_1 f_1 + \beta_2 f_2 + \ldots)$$

Here, g is the so-called link function. I chose the gamma distribution model which is appropriate for percentage data and other kinds of censored data (Gill, 2000), like those in the present return data. Because maximum likelihood (ML) estimates are sensitive to outliers and because estimation methods based on outlier detection are iterative and therefore impractical in large data-sets (Rousseeuw & Leroy, 1987), extreme return values (below 0.5 and above 1.5) have been excluded a priori, leading to a slight reduction of the two samples (Xetra: n = 4,277; and NYSE: n = 10,193, with n a result of number of firms multiplied by number of time intervals).

For the gamma distribution model, the link function is the reciprocal function $1/y$. Therefore, the model for explaining return data receives the following form:

$$\begin{aligned}\mathrm{Ret}_{t+w,i} = 1/(&\beta_0(w) + \beta_1(w)^*\mathrm{univBuy}_{t,1} + \beta_2(w)^*\mathrm{univSell}_{t,I} + \beta_3(w)^*\mathrm{EquRec}_{t,i} \\ &+ \beta_4(w)^*\mathrm{LogVol}_i + \Sigma\beta^*_{4+k}d_k)\end{aligned}$$

with k = 1, ..., T and d_k = 1 if $t = k$ and 0 otherwise (time dummies); i: firm, t: time interval; $\mathrm{univBuy}_t$, $\mathrm{univSell}_t$, EquRec_t: Analyst recommendations in the month preceding day t.

Note that parameters β are modeled as a function of *w* because it is hypothesized that the impact of independent variables varies with investment time window w. Further, it shall be explained that a negative value of any β_1, β_2, together with a large positive β_0 (e.g. around 1) implies a positive impact on the dependent variable (Return). Also, because the dependent variable in the above regression equation model is measured with a time lag, the direction of causality is clearly identified. Therefore, no endogeneity problem in the sense of simultaneous causality may arise in analysis. Other possible sources of endogeneity (errors in variables, omitted variables—see Bascle, 2008) do not affect the test of hypotheses here, which requires comparison of regression models, instead of unbiased parameter estimates.

5. Results

Table 1 presents descriptive statistics (excluding time dummies) for both samples. They show especially the low frequency of univocal selling recommendations for both samples. I therefore checked whether their inclusion in the following estimation would affect results. Because this was not the case, I included them in the following presentation to make comparison possible.

The ML estimation according to the hypothesized model has been exercised in three steps: first, by including only the control variables (Model I), second, adding the dummy variables for univocal recommendations (Model II), and finally, adding equivocal recommendations (Model III) as explanatory variable. As a preliminary step, I examined results for varying investment time windows w. As a test for Hypothesis 1, results for those time windows are relevant which show the highest estimates for the parameters of the hypothesized model (results for other time windows follow below). In both samples, the length of this time window was around 90 days (90 for Xetra and 93 for NYSE). These estimates are presented in Tables 2 (Xetra sample) and 3 (NYSE sample). In support of Hypothesis 1, only equivocal recommendations (EquRec) explain returns significantly and in the proposed direction. The parameter estimate as well as the increase in model fit between Models 2 and 3 are significant in both samples. In contrast to the Xetra sample, the larger NYSE sample showed weakly significant effects of univocal recommendations as well, and the increase in model fit between Model 1 and 2 is also significant. Overall the results of the generalized linear model estimation clearly support Hypothesis 1.

Hypothesis 2, which is a narrower specification of Hypothesis 1, excludes the possibility that time windows significantly different from the 90-day window, also exist with the same dominance of the parameter estimates for equivocal recommendations. Therefore, no statistical test is necessary here, but Hypothesis 2 shall be rejected if only one additional time window can be identified which satisfies the above conditions. To test this, I ran ML estimations for all time windows *w* (*w* = 10–100) and for both samples, according to the hypothesized model. Because reporting all results for these 180 regressions is neither within space limitations nor necessary, Figures 2 and 3 summarize the results by plotting parameter estimates for these time windows. According to Hypothesis 2, we expect exactly one region for *w* (horizontal axis), where the parameter estimates for equivocal recommendations are below (more negative parameter estimates signify stronger positive impact on

Table 1. Descriptive statistics (excluding time dummies) for Xetra sample (first number, *n* = 4277) and NYSE sample (second number, *n* = 10193): mean, standard deviation, and correlation

	Mean	Standard deviation	Log volume	EquRec	UnivBuy	UnivSell
Log volume	10.65/12.22	2.68/2.06				
EquRec	0.02/0.02	0.16/0.13	0.06**/0.12**			
UnivBuy	0.05/0.02	0.21/0.14	0.11**/0.11**	−0.04*/−0.02*		
UnivSell	0.001/0.003	0.02/0.06	0.01/0.05**	−0.01/−0.01	−0.01/−0.01	
Return	1.09/1.03	0.16/0.19	−0.01/0.01	0.04*/0.04**	0.02/0.03**	−0.01/−0.01

*Level of significance at $p < 0.05$.

**Level of significance at $p < 0.01$.

Table 2. Reciprocal regression (ML estimation for generalized linear model with gamma distribution) on stock returns for a 90-day time window for Xetra sample

	Model 1	Model 2	Model 3
	Estimate		
Intercept	0.985**	0.985**	0.985**
	(0.012)	(0.012)	(0.012)
Control variables			
Log of volume	0	0.0001	0.0001
	(0)	(0.0001)	(0.0001)
14 Time dummies	Included**	Included**	Included**
Explanatory variables			
Ambigous rec.			−0.026*
			(0.012)
Unambigous buying rec.		−0.014	−0.015
		(0.009)	(0.009)
Unambigous selling rec.		0.014	−0.013
		(0.105)	(0.105)
F-value for including variables		1.14	4.426**
Cox–Snell pseudo R^2	0.2839	0.2843	0.285

Notes: Table contains estimated parameters of generalized linear model. Values in parentheses are standard errors.

*Level of significance at $p < 0.05$.

**Level of significance at $p < 0.01$.

Table 3. Reciprocal regression (ML estimation for generalized linear model with gamma distribution) on stock returns for a 93-day time window for NYSE sample

	Model 1	Model 2	Model 3
Intercept	1.018**	1.017**	1.015**
	(0.012)	(0.012)	(0.012)
Control variables			
LogVol	−0.001*	−0.001*	−0.001*
	(0.001)	(0.001)	(0.001)
39 Time dummies	Included**	Included**	Included**
Explanatory variables			
EquRec	*		−0.02*
			(0.01)
UnivBuy		−0.01	−0.011+
		(0.009)	(0.001)
UnivSell		0.049+	0.048+
		(0.026)	(0.026)
F-value for including variables		2.553**	4.038**
Cox–Snell pseudo R^2	0.3491	0.3494	0.3497

Notes: Table contains ML estimates for parameters of generalized linear model. Values in parentheses are standard errors.

+Level of significance at $p < 0.10$.

*Level of significance at $p < 0.05$.

**Level of significance at $p < 0.01$.

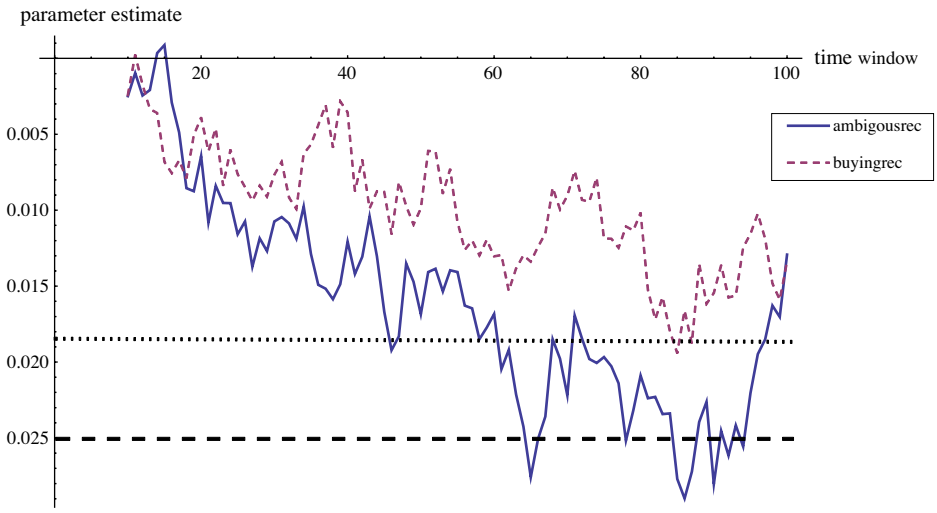

Figure 2. Xetra sample regression parameter estimates for ambiguous and unambiguous recommendations on returns for investment windows from 10 to 100 trading days.

Horizontal dashed lines indicate the approximate threshold level of significance beyond $p < 0.05$ (bold for ambiguous recommendations and thin for buying recommendations).

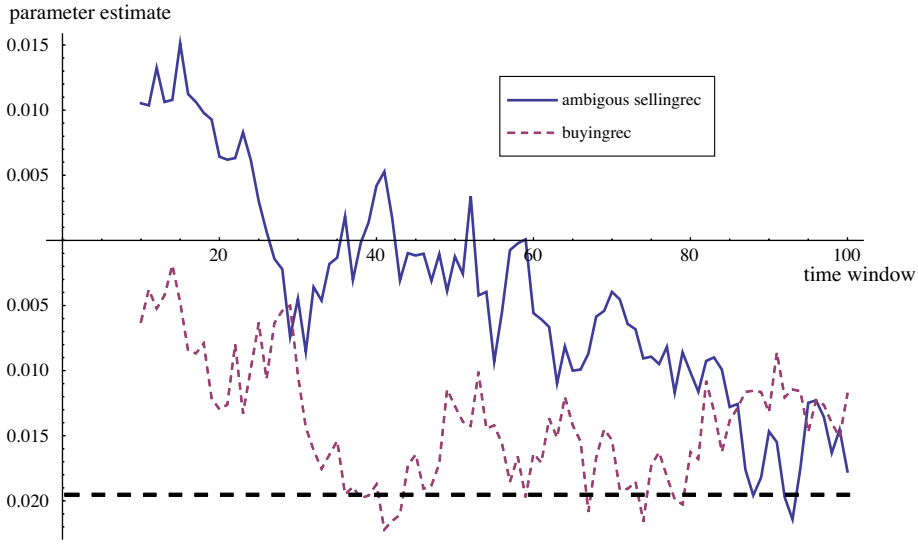

Figure 3. NYSE sample generalized linear regression parameter estimates for ambiguous and unambiguous recommendations on returns for investment windows from 10 to 100 trading days.

Horizontal dashed line indicates the threshold of reaching significance at $p < 0.05$.

returns) univocal buying recommendations and significantly different from 0. This is clearly the case in Figure 3, which supports Hypothesis 2 in the NYSE sample. It is less clear in the Xetra sample because the estimates for EquRec are larger than those for univBuy over a long time window. However, they reach the level of 5% significance (represented through the dotted horizontal line in Figures 2 and 3) only at the end of this period. Therefore, the Xetra sample provides partial support for Hypothesis 2.

6. Discussion

This paper opens a field of inquiry for organizational and for strategic management research. It explores implications of the central premise that organizations make sense of equivocal situations in asset markets, specifically for momentum trading. The central proposition that investors in asset markets will form Implicit Organizations to exploit equivocality in the market through manufacturing a trend, which requires a significant market share, is strongly supported through the empirical results presented here. The assumption of strategically maneuvering Implicit Organizations explains returns to momentum trading in asset markets in a manner and to an extent which is impossible to achieve by assuming independent or herding traders. Also, an interpretation of these results as a singular anomaly can be excluded by having examined subsequent time windows (22 and 15 months)

in two different investment contexts. In this empirical paper, theoretical discussion had to be limited to referencing classical concepts, which have to be refined in future theoretical work. Especially, the transfer of the arguments for asset trading to other markets has to be examined.

Because I used the sensemaking perspective as a theoretical foundation, the paper also contributes to this field by adding to the small set of studies on sensemaking and on related social interaction in asset markets. A stronger utilization of the sensemaking perspective even may inform economic approaches beyond looking on investor psychology (Hirshleifer, 2001), and it might help sociological studies to explain why individual market participants need to communicate and why strong ties with others in the market do occur regularly (e.g. Knorr Cetina & Bruegger, 2002). For example, a focus on equivocality (or ambiguity) may guide sociological studies and may allow to reexamine economists' results on the impact of ambiguity, which still are strongly primed through the observation of ambiguity avoidance of individuals (Ellsberg, 1961). Because the latter studies are mainly of quantitative nature, the present paper additionally shows avenues for economic research to include sensemaking in quantitative models. Generally, the paper is among few quantitative studies into sensemaking.

Finally, by proposing an Implicit Organization, the paper adds to the newly reawakened discussion on hybrid and incomplete forms of organizations beyond networks, such as Partial Organizations (Ahrne & Brunsson, 2011), Meta-Organizations (Ahrne & Brunsson, 2008), or seasonal organizations (Birnholtz, Cohen, & Hoch, 2007). All of these attempts challenge the traditional distinction between markets and hierarchies, with hybrid forms (e.g. networks) somehow in between. While economists tend "to see markets everywhere" (even within organizations), it might be fruitful to more openly search for "organizations everywhere", guided through the defining criteria cited in this paper. Likely, this offers novel explanations for economic phenomena through organizational concepts and theories. In particular, the present paper provides a strong indication that the "Efficient Market Hypothesis" has to be replaced in the domain of momentum trading through organizational and strategic management explanations. Surely, pure market explanations will remain superior for a wide range of economic outcomes, but they should be contested in more domains against alternatives, as in this paper.

While being an asset, such diverse contributions also open up many possible forms of critique. First, beside references to sensemaking theory, its application to a new domain makes it necessary to include results and proposition from a variety of research streams which might be interpreted as rather eclectic. However, as Miller (2007) argues, the discovery of new arguments is often either atheoretical or spans many theories. Second, in regard to the financial literature, the results of the generalized linear model estimation can be interpreted as ex-post measures for returns of investors following a specific portfolio strategy. Especially, an individual investor who formed portfolios based on ambiguous analyst recommendations to exploit momentum-investment strategies would have realized returns above (approximately) 2.5% in the Xetra-market and above 2.0% in the NYSE-market within approximately half a year. This is likely a conservative estimate because of the robust regression procedure. Such returns are, on the one hand, at a moderate level, but, on the other hand, more than other momentum strategies deliver according to investment research (Sturm, 2008). Still, many investors would not accept such as a strategy as worthwhile following. However, it was not (and cannot be) the aim of such a study to estimate actual investment returns. Here, the only criterion is the mere existence of a dominant strategy. It was not the goal to give an indication of the actual amount of returns. If investors indeed cooperate within an Implicit Organization, for which this study provides strong support, then they will develop much more fine-grained signals, better coordination mechanisms, and they will avoid the noise which is necessarily present in the above estimation of returns, and, thereby, will enjoy higher returns, of which this study can give no indication. Otherwise the organization would be no longer "implicit".

The latter might be questioned from a legal stand point. Can members of an Implicit Organization still be convicted of illegal collusion or insider trading? The answer is clearly negative because of the sole reliance on publicly available signals and on timing (rhythm) as a coordination mechanism. Neither there is a law nor is a law possible to pass which could prohibit such organizing.

A third class of critique might be brought forward in regard to sensemaking theory. A relatively simple hypothesis, like it is derived here, hardly captures all the subtleties of sensemaking processes within organizations. Generally, non-interpretative research in some sense contradicts interpretative processes as a research object (Allard-Poesi, 2005). Such a critique is especially justified if an overly simplistic derivation leads to propositions which are not clearly distinguishable from predictions other theories might produce. For example, the above references to bandwagon effects and herding behavior in financial markets raise the question whether herding behavior provides an alternative and sufficient explanation. Herding behavior is indeed an explanation of long-lasting trends in price movements and of deviations from the random walk hypothesis, which are not triggered through changes in the stock's underlying fundamentals or exogenous effects (e.g. increasing favorable market conditions). However, herders follow any trend and do not discriminate signals in regard to variables as they have been proposed here. In particular, herding cannot explain why equivocality might be used as a signal (Hypothesis 1, fully supported) and, especially, how "herders" are able to disinvest after a certain time interval (Hypothesis 2, partially supported). The fact, that "late herders" always have to accept losses is also acknowledged by economists, at least when there is no positive net supply of an asset (Boswijk, Hommes, & Manzan, 2007). Also, traditional economic theories view equivocality (ambiguity or uncertainty in this literature) as something decision-makers usually avoid (Ellsberg, 1961), also in asset markets (Hirshleifer, 2001). In line with the latter logic, financial markets should take measures to reduce ambiguity (Easley & O'Hara, 2010). Because sensemaking theory is the only theory which puts the role of organizations for coping with equivocality as its "central theme", the reduction to this single effect seems legitimate.

Finally, while any method of making the implicit (organization) explicit is subject to potential critique, especially other measures for equivocality, as the central concept for applying sensemaking reasoning, should be explored, both theoretically and empirically. Although I tested the hypotheses in two independent samples, generalizing results to other contexts and time periods might be limited for theoretical reasons because the coordination mechanisms used by an Implicit Organization likely change and will be adapted to the investment context. As equivocality is represented differently at Xetra and NYSE, it has to be expected to be different in other contexts.

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Note
1. All of the following arguments also apply for short selling those with selling recommendations, which I will not mention further. Also, I exclude dividends from the discussion here and in the following because of their irrelevance for short-term momentum trading.

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