MULTI-LEVEL STUDY OF SANCTIONS: THE IMPORTANCE OF SECOND-ORDER SANCTIONS

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1 The research was funded by the Wharton Financial Institutions Center at the University of Pennsylvania and the David K. Whitcomb Center for Research in Financial Services at Rutgers. I thank Elizabeth Craig, Karen Jehn, and the Wharton Micro-Meso Research Group for their insight comments on earlier drafts.
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ABSTRACT

In this study, I use observational data to analyze instances of sanction conflict in a workplace, with the goal of understanding how sanctions may compete or interact. Using a data sample of trader behaviors exhibited while working under the influence of three sets of groups (crowd, firm, and exchange), I identify and analyze the interplay of positive and negative sanctions. An analysis of sanction processes reveals a dynamic system where one group’s sanctions not only causes another group’s sanctions but also can modify another group’s sanctions. This system of second-order sanctions is both intended and unintended. I conclude by presenting a process analysis of unintended second-order sanctions which involve organizations reinforcing behavior it formally prohibits.
Said Steve (superintendent) sharply, a couple of minutes after the 7:15 whistle blew, “I want 25 or 30 of those by 11 o’clock!” I smiled at him agreeably. “I mean it!” said Steve, half smiling himself, as McCann and Smith, who were standing near us, laughed aloud. Steve had to grin in spite of himself, and walked away. “What he wants and what he is going to get are two different things,” said McCann. (Roy, 1953: 513)

Early research on factory workers reveals the conflict between management’s formal directives and worker behavior. According to Roy’s (1953) analysis, factory workers were motivated by a competing set of sanctions. Management’s economic incentives for production conflicted with the workgroup’s system of social sanctions where, “Aiming too high would have brought extreme criticism and possibly severe penalties from the group” (Roy, 1953: 513). Thus, the formal managerial positive sanctions conflicted with the negative sanctions of the workgroup.

Similar to Roy’s 1953 findings, previous research documents the influence of norms and sanctions on employee behavior in circuit board manufacturing (Barker, 1993); among fast-food employees (Trevino and Victor, 1992); in an airplane factory (Bensman and Gerver, 1963); among dockworkers (Mars, 1974); among retail, hospital, and manufacturing workers (Hollinger and Clark, 1982); and in a cross-level study of white-collar employees and business professionals (Robinson and O’Leary-Kelly, 1998). While these studies examine a particular sanction in detail or the relative influence of one sanction in comparison to another, few examine the interplay between the sanctions themselves (for an exception, see Trevino and Victor, 1992). For instance, Hollinger and Clark (1982) highlight the relative effects of the sanctions belonging to two different groups (employees, managers) but they do not consider situations when the sanctions reinforce conflicting behaviors or how one sanction could affect another.
In this study, I use observational data to analyze instances of conflict between sanctions in a workplace, with the goal of understanding how sanctions may compete or interact. In the next section, I will review the current research on sanctions and discuss areas in need of further development. This discussion will be followed by a description of the study setting, which provides the context for analyses. The analyses lead to the identification of tension and interplay between sanctions and the introduction of theory on second order sanctions. I conclude with recommendations for future theory development and managerial practice.

**SANCTIONS**

The term “sanction” is widely used but not often defined (c.f. Gibbs, 1966). Common uses and definitions refer to rewards, inducements, reinforcements, incentives, and punishment (Brief, Butram and Dukerich, 2001; Manz and Sims, 1981; O’Reilly and Weitz, 1980; Tenbrunsel and Messick, 1999; Trevino, 1992). While definitions may vary, sanctions are consistently conceptualized as important components of behavioral theory. Specifically, assignment of sanctions and sanction expectancies motivate individuals to act in accordance with norms or rules and induce specific behaviors (Akers, Krohn, Lanza-Kaduce and Radosevich, 1979; Burgess and Akers, 1966; Hollinger and Clark, 1983; Tenbrunsel and Messick, 1999; Trevino, 1992; Trevino and Youngblood, 1990). The term “sanction,” in this paper, refers to both the positive and negative means of motivating desired behaviors.

Many behavioral theories incorporate the notion of sanctions; social control theory, deterrence theory, operant learning theory, and social learning theory involve sanctions, which serve as motivating factors (Akers, 1998; Hollinger and Clark, 1982, 1983; Manz and Sims, 1981; O’Reilly and Weitz, 1980; Trevino and Youngblood, 1990). Management scholars who study employee deviance and misbehavior often adopt Bandura’s formulation of social learning
theory as a theoretical lens for predicting behavior (O’Leary, Griffin and Glew, 1996; O’Reilly and Weitz, 1980; Robinson and O’Leary-Kelly, 1998; Trevino, 1992; Trevino and Youngblood, 1990). O’Reilly and Weitz (1980) argue that the social learning perspective is more powerful than operant learning theory because the workers in their study benefited from watching the assignment of sanctions. They explain, “actions by the supervisor that are seen as maintaining legitimate group standards may reinforce productive group norms, instill feelings of equity, and result in increased performance through social learning” (O’Reilly and Weitz, 1980: 480). Thus, individuals learned from watching others’ consequences instead of merely experiencing their own. This is considered vicarious learning or modeling (Manz and Sims, 1981). This process was further analyzed by Trevino and Youngblood (1990) who found that vicarious rewards and punishments affected outcome expectancies, which in turn affected the display of ethical decision making in an experimental setting.

Understanding the effects of learning in the current workplace presents considerable challenges because multiple groups influence employees through modeling and sanctions. Social learning rests upon a process whereby individuals learn through attention, retention, and reinforcements and, as Manz and Sims (1981:105) explain, “If any of these processes is lacking or impaired, the learner is less likely to perform an observed behavior.” Few studies consider social learning processes in a complex work environment where the sanctions used by one organizational group to motivate specific behavior may affect or change those assigned by another organizational group. Roy’s (1953) pioneering work captured this tension but stops short of describing the process or mechanisms that allowed the workgroup to undermine management’s sanctions.
Literature in criminology is more advanced in addressing the possible conflict between sanctions. Criminological formulation of Akers’ social learning theory in the differential association theory tradition accounts for multiple groups (Akers, et al., 1979; Akers, 1998; Matsueda, 1982). The two approaches to social learning theory do not contradict each other; the criminology literature accounts for the influence of multiple groups (differential associations), while the psychological tradition is focused on the cognitive processes of modeling (Akers, 1998). Akers and colleagues (1979) empirically examined the influence of multiple groups on adolescents’ alcohol and drug use and found statistical support for the effects of differential association on deviant behavior. The effects of imitation here were weaker, however, than other social learning variables such as reinforcements. Akers and colleagues (1979: 647) explain, “…imitation in social learning theory is considered to have its greatest effect in the first acquisition or initial stages of behavior while the associational, reinforcement, and definitional variables are more important in the maintenance of a behavioral pattern.” Thus, the exposure to behaviors is important for learning the behavior but the repetition of the behavior depends upon exposure to reinforcements and social interpretations (definitional variables) of different referent groups. While this research on differential association and social learning specifically emphasizes the role of multiple groups, the interplay of sanctions is not considered. In other words, the research does not consider the way one group’s sanctions may affect the sanctions of another.

The current theory suggests that the relative strength of messages and modeling, coupled with reinforcements, will determine an individual’s behavior. Current workplaces involve multiple groups that potentially offer different models of behavior and reinforcements. This study examines one portion of this difference, the variation in sanctions, in detail. What is
unclear is when groups offer conflicting models of behavior, whether or not different group’s sanctions interact and affect one another. Therefore, the purpose of this inductive inquiry is to understand how sanctions interact in a complex work setting where groups present conflicting messages. I begin the inquiry by describing the work context of this study in the next section.

**RESEARCH SETTING**

I chose to study traders on the floor of financial exchanges because past research and descriptions in the popular press suggested that observable conflict occurred between the sanctions used by the groups (Abolafia, 1996; Baker, 1984a, 1984b; Dugan, 2000; Lebleici and Salancik, 1982; MacKenzie and Millo, 2003). It is important to properly explain the nature of the groups that influence traders while conducting their work. Therefore, I begin with a descriptive analysis of the three major groups -- crowds, firms and exchanges -- that use sanctions to influence trader behavior. I also describe the nature of the work, which is important to understanding sanctions.

On the exchange floor, traders experience social influence and sanctions from multiple groups. These forms of influence may send opposing messages about appropriate behavior on the trading floor. I examined the type of influence and sanctions of three important groups on the trading floor: trading crowds, trading firms and the financial exchange. I observed six trading crowds and three firms operating on the trading floor of two financial exchanges over a nine-month period. These observations took place over five years ago, before a major movement to reform the exchanges. Thus, the data are historical and does not accurately portray current workplace sanctions on financial exchanges. The data, however, display the interplay between sanctions, which broadly applies to many organizations both then and now. I will first describe the nature of the observations and then each group in detail.
Observations

I gained access to the exchange through two trading firms. These firms, with approval from the exchanges, provided me with access to the trading floor as well as access to their offices. I wore a trading jacket and badge. All traders I observed were told that I was an academic researcher studying trader behavior. This introduction prompted many traders to tell stories about their own behavior as well as that of others. They also shared their trading philosophy and critiques of the trading environment and appropriate crowd behavior. Traders chose to share their more unusual experiences (arguments, physical altercations, behavior under tough market conditions). When trades were announced or conflicts arose, traders quickly ignored my presence.

During my time on the trading floors, I observed trader behavior during highly active periods (high volume trading, government announcements, asset specific announcements, etc.) as well as quiet periods. I spent an average of three days per week on-site observing the traders at their posts over a nine-month period. These observations occurred on two financial exchanges. In addition, I observed three firms outside of market hours for 152 hours over a nine-month period. These observations included sessions of new trader training and daily meetings before the opening and after the close.

While I was on the financial exchange floors, I took notes throughout the day and typed field notes at night. All names were recorded as pseudonyms and pseudonyms appear in the data presented within this paper. At the time of this analysis, the data are over five years old.

I developed grounded categories of group sanctions by following the methods of Glaser and Strauss (1967). Each week, I would review my field notes and look for patterns in the behaviors exhibited in the past week. I created a separate file in which I kept track of the
categories and adjusted them to reflect new observations and the emergence of new categories. The following is an overview of the trading environment and details about the nature of the work. I will begin by discussing trading crowds, firms and exchanges before moving to a discussion of the sanctions associated with each group and the subsequent conflicts between sanctions.

Trading Crowds. After spending several days walking around each trading floor and examining reports on trading crowd activity, I chose the 6 crowds for this study because they provided (1) a range in crowd sizes, (2) a range in classes of assets, (3) were in existence for more than 3 years at the time of the study, and (4) variance in trading activity. The smallest crowd contained 6 traders and the largest contained 53. The crowds provided a representative mixture of asset classes on the floor of a financial exchange. All 6 crowds dealt with actively traded assets, which meant that there were more opportunities to observe behaviors and performance. Crowds with rarely traded assets do not offer many opportunities to observe market making.

Traders are typically observed while they work. Crowds are stationed close together such that traders located in one crowd can often view the behavior of traders in several other crowds on the exchange floor. Traders are also observed by exchange floor officials, who walk around the floor monitoring trader behavior. In addition to inside observers, the public can view trader behavior from public observation booths. On some exchanges, trading activity is televised throughout the day. Some networks place correspondents on the floor of financial exchanges where they report daily financial news while standing in front of trading crowds. Exchanges also regularly invite guests from the financial industry, the media, politicians and celebrities to tour the floor. Thus, outside individuals surround traders while they work.
Traders will buy and sell the same asset in the same crowd every day. The area where the trading is conducted usually involves some form of physical structure that signifies that the area is dedicated to trading specific assets. This area may be referred to as the trading desk, post, pit or crowd for a particular asset. Stable groups assemble around trading areas based upon the assets being traded. It is common to refer to the crowds by the most commonly traded asset and for traders to identify themselves as belonging to this crowd.

Because traders who work for the same firm typically do not trade in the same crowd, traders usually spend more time with crowd members than anyone from their firm during their day. All day, crowd members stand side-by-side, with very little space between them, watching electronic screens for movements in the market, which guide their trading choices. Traders prefer positions closer to the electronic screens or where the brokers enter the crowd to announce trades because opportunities in the market are easier to hear and see in these positions. The exchange does not assign physical positions to traders and, according to the exchange rules, those who arrive earlier should receive better positions. However, in actuality, informal norms develop around certain positions in the crowd and when challenged, some traders will actively work to defend their physical positions. Traders may place objects such as stools or chairs in their spots when they leave the crowd, or they may ask their clerks to stand in their position until they return.

The floor traders in this study are market makers; they make markets in an auction format in which the trade is awarded to the first and loudest trader with the best price. There are boundaries around the nature of making markets but ultimately, the traders are obligated while in their crowd to make a two-sided market - a price at which the trader will buy the asset (a bid) and sell the asset (an offer). The distance between the buy and sell prices is called the “market
spread.” If the market conditions are volatile and unfavorable, the trader may state an unrealistic spread (e.g., buy at $1 and sell at $100) but declining to make a market or silence is unacceptable according to exchange rules. There is always the threat that the individual requesting a market will require a trade and the trader must honor the given market (either sell or buy at the trader’s two-sided market). Each exchange differs in the amount of the asset (“size” of the trade) the trader must trade at the offered market. When the markets are unfavorable, traders may choose to leave the trading floor so as to avoid requests for such markets.

Brokers, who represent clients, enter the crowd, request two-sided markets and then “work a trade.” By doing so, they attempt to negotiate a better market for their clients. A trade may be for the “public,” which means it is not for a trader on the exchange or another exchange. The broker is obligated to mention if the trade is for the public or a trader when requesting a market. Some traders will adjust their markets and attempt to fill public orders at a discount in order to maintain good relations with the public and “win order flow” away from other exchanges. The quantity and price of these orders, which may shift market-wide expectations about the appropriate market spread, are electronically disseminated.

Traders can also trade without actually making markets. One trader may signal participation in a trade after another trader in the crowd has stated a market. Thus, one vocal trader in the crowd calculates and voices a market spread while another silent trader may raise a hand to signal interest in a portion of that trade or simply call out an amount of the trade he or she would like (e.g., “take ten”).

**Firms.** In this industry, firms vary in size and structure and usually occupy offices near the exchange. Two of the three firms observed in this study were of medium size while the third was a large firm. A group of traders owned the two medium-size firms while the third firm was
larger and publicly owned. Two of the three firms operated on one exchange while the third, larger firm operated on multiple exchanges.

Firms are affiliated with exchanges in a number of ways. Firms are members of the exchange and may own seats on the exchange, which they then assign to the traders who work for the firm. Firm employees may hold positions within the exchange governance system such that an owner of a firm may sit on an exchange committee focused on a number of topics such as membership, technology, quality assurance, and disciplinary hearings.

**Exchange.** The term “exchange” refers to the membership organization that governs trading as well as the physical location where the market makers, brokers, clerks, floor officials and exchange employees meet to trade. Exchanges vary in the number of members, product offerings and amount of orders processed. I observed behavior on two exchanges; one small and one large.

Traders receive their right to trade from the exchange. All traders receive a book containing the rules and regulations that apply to trading on the exchange. Depending on the exchange, the trader may need to attend a series of training classes followed by an exam. New traders must pass the exchange’s trading tests before they are granted the right to trade on the floor. The training and exam reflect the information in the book of rules and regulations.

Various individuals represent exchange presence on the trading floor: administrators process transactions, Floor Officials walk around the floor, and technical groups assist technology.

**Figure 1** displays a diagram of crowds, firms and exchange. The diagram depicts a situation when two firms (Firm A, Firm B) employ two different traders (Ta, Tb) who work in the same crowd on the same exchange. Next, I consider the ripple effects of sanctions and how
one group’s sanctions affect those assigned by a different group and introduce the concept of second-order sanctions.

**ANALYSIS OF CONFLICTING SANCTIONS**

Financial exchanges strive to find fair yet efficient ways of filling market orders (Boatright, 1999). Evolving exchange rules reflect attempts to balance efficiency and equity and find the best solution for matching trades. A crowd of traders, however, may decide to meet the demands of market orders in a way that conflicts with the current exchange procedures. In such situations, a tension exists between the exchange’s and the crowd’s perspective on the best process for ensuring efficient and fair-trading. In this section, I present and compare sanctions used by trading crowds, firms, and exchanges to reinforce desired behaviors. I begin with a description of the financial exchange's rules and sanctions, which serve as a backdrop for discussing these tensions. Using a sample of observed behaviors, I provide a comparison of sanctions across groups in Table 2.

**Exchanges Sanctions**

During the time of my observations, exchange rules and sanctions were predominantly focused on equal access to trades. Any trader was allowed to join a crowd and stand in any open physical position within the crowd. If the trader offered the first, audible, and best market, then the trader was allowed to trade as much as stated in the original market. Behavior that prevented a trader from receiving equal access to trading was prohibited. Included in this category were forms of harassment such as verbal abuse, threats, physical abuse, and other means of intimidating traders into not trading.

As mentioned earlier, new traders had to pass the exchange’s trading tests before they were granted the right to trade on the floor. The training and exam reflected the information in
the book of rules and regulations. I was not able to gain access to a training session but received copies of training books and materials and interviewed traders who attended exchange training. These traders described similar experiences in which instructors, some from the exchange and some from outside, read through the materials presented in the books, and when appropriate, provided contextual examples. One exchange provided mock trading sessions in which traders had an opportunity to practice making markets with simulated data. These sessions, however, did not simulate social dynamics in crowd trading.

The training books also described the sanctions associated with violations. Exchange sanctions typically fell into three categories: fines, suspensions and expulsion. Financial exchanges used a sliding schedule of fines that increased with the number of violations. During this time period, maximum fines reached $10,000. More severe violations were cause for temporary or permanent loss of trading rights on the exchange and, during the observed time period, occurred infrequently. The most extreme violations resulted in criminal charges. The exchange sanctions were all formal, predetermined through published rules, and had a maximum level. Exchange sanctions were assigned through a formal process and the proceedings could be reviewed by external agencies. Decisions regarding major sanctions such as suspension and loss of trading rights required long deliberation and did not occur immediately after the behavior was detected. In fact, some sanctions were not assigned until years after the infraction. Only small-scale fines were assigned on the floor of the exchange immediately after the behavior was detected.

To enforce their rules, financial exchanges used floor committees to monitor the activities of the traders. Off the trading floor, individuals were monitoring the trading activity for trading irregularities, which fell outside the set of observable behaviors included in this study. The
individuals directly responsible for monitoring the visibly detectable misconduct on the trading floor were the floor officials. Much of the exchange’s system of sanctions relied upon the surveillance of the floor officials and the reporting of misconduct by traders. The floor officials wore special jackets and badges as a means of communicating their position. As will be discussed later, the exchanges, after I completed my research, led initiatives to improve monitoring and enforcement systems. Thus, this research is a snapshot in time before large-scale reforms were enacted.

**Firm Sanctions**

In Table 2, I describe potential responses to trader behavior based upon fieldnotes of actual firm responses. I was unable to observe the actual corresponding firm sanction for each instance of crowd sanction because it tended to occur behind closed doors within the firm. Through interviews with traders on the floor, overhearing disciplinary sessions between managers and traders, and observing daily meetings within firms, I learned that firms had a strong expectation regarding trader productivity on the exchange floor. Many firms reviewed each trader’s position and productivity in daily firm meetings before the open. These meetings were a means to signaling managerial interest in productivity as well as creating intra-firm competition, as traders knew each other’s positions.

The emphasis on trader productivity was a source of concern for the traders. As one trader explained, the reviews within his firm depended heavily on performance in the crowd. Greg described the review process with his last employer. One year Greg experienced large trading losses and received a warning about his performance and a poor review. Greg explained that six months later, at his next review, he received an extremely positive performance evaluation. Greg tore up his second review in front of his manager because, according to him, his behavior had not
changed over the six months, but the market changed so he earned more money. He said to his manager, "Don't you dare give me another one." Greg explained that his firm was not paying attention to his behavior as a trader during the review process, but only to his profitability.

While all the firms in my study possessed a strong orientation towards trader productivity, they differed to some degree in their orientation towards the exchange. Some firms reinforced behaviors that aligned with the exchange rules, while others placed emphasis on the desired behaviors of the crowds. Firm orientation could be gauged, in part, by the training of new traders. I observed educational sessions for three firms and found instances where the tension between crowd and exchange sanctions was acknowledged.

When I observed Firm A’s trading crowd exercise for their new traders, they explained that the exercise is preparation for trading in crowds on the exchange floor. During the exercise, one senior trader acted as the leader and ran the exercise while two other senior traders stood alongside three new traders in a mock crowd. The leader would call out new conditions in the market and the traders would respond with markets and trades. If the new traders were slow in responding, the senior traders would yell names at them. One of the new traders was singled out and given more pressure than the other two. At every pause, the senior traders would scream, “What the f**k are you doing here? If you're not going to trade, leave the crowd. Get out of here!” The statements were repeated. Then, the senior trader insulted the new trader’s appearance. At the end, the new trader stopped trying to respond to the trades and started responding to the senior traders’ comments. This caused more harassing from the senior traders. The new trader finally responded to the insults. The senior trader screamed, "You're going to forfeit trades to fight with me!" The new trader became very disturbed and screamed, “F**k this!” and he stormed out of the room. He returned later and continued to work for the firm.
The behavioral modeling and negative sanctions that the newcomers experience in the firm training resemble that experienced by the traders in the trading crowds. In this exercise, the senior traders are not only setting the new traders’ expectations about harassment, but also encouraging the new trader to resist negative sanctions and continue trading. This appears to reinforce the firm’s goals regarding productivity yet does not endorse the enforcement of exchange rules, as the trader is never encouraged to seek Floor Officials. By mimicking the behaviors on the trading floor and not suggesting that these behaviors are worth reporting, the firm teaches new traders how to cope in ways that minimize the financial sanctions suffered ("You're going to forfeit trades to fight with me!"). This may also be a means to preventing backlash from the crowd which is described in more detail in the next section on crowd sanctions.

Some firms explicitly endorsed behaviors exhibited in the trading crowds. During a firm training session on the mechanics of trading at Firm B, a new trader asked the instructor why the exchange was having an educational session on trader conduct. The instructor replied, “The exchange has been doing it for years but it never changes the traders’ behavior because there are rules and then there are RULES.” He continued with several examples and then summarizes, “Society has rules and then there are legal rules but traders are their own society and have their own rules and those are the ones you follow on the floor.” Clearly this firm had an orientation that favored the desired behaviors of the crowd over the rules of the exchange.

There were also many firms that strongly endorsed exchange rules over crowd behavior. Some firms created negative firm sanctions that were tied to exchange sanctions such that those traders who were fined or reprimanded by the exchange would also receive strong firm sanctions. In one particular case, a trader was suspended from the exchange floor for hitting
another trader. The trader’s firm suspended the trader for another two weeks, thereby causing the trader the inability to earn income for three weeks. This firm’s orientation extended beyond profitability by endorsing exchange rules. This approach, however, relies upon the exchange sanctions to convey information about the traders’ conduct, and, as the data presented in the next section suggests, the assignment of exchange sanctions was not always an accurate gauge of trader behavior.

**Crowd Sanctions**

The main source of conflict between sanctions arose from a difference in the behaviors endorsed by the exchange and some crowds. Crowds reinforced desired behaviors through negative and positive sanctions. More specifically, I documented sanctions used to reinforce behaviors that reflected (1) respect for seniority and (2) assistance with undesirable trades. I will discuss sanctions in relation to the crowd’s desired behaviors as well as firm and exchange sanctions.

**Respect for seniority.** In my sample, there were crowds that favored seniority ("senior traders"), such that new traders should not join a crowd and trade freely without exhibiting some deference to, and respect for, the existing crowd members. This respect was shown through accepting to a distribution of trades that favored senior trades and allowing senior traders to stand in the most desirable physical positions within the crowd. This norm was expressed through many interactions in my study but in one instance, John explicitly told Glenn, a new trader who attempted to trade, "You need to show respect to the more senior guys. No one wants you here and I'm speaking for a lot of people.” Glenn sees John’s attempts to trade as a sign of disrespect and is expressing the crowd’s disapproval.
If the new trader exhibited behavior that did not favor seniority, such behavior could be considered a form of stealing. This rationale was explained by Max, a trader with a long history with the exchange. He and I stood side-by-side and observed an altercation between Sam and Fred, who were in another argument in a different crowd. Fred, a new trader in Sam’s crowd, attempted to participate in a trade. Sam became angry, yelled at Fred, and threatened to fight Fred outside. Max analyzed the interaction for me in the following manner:

*Would you mind if someone stole money out of your purse? Would you let me take money out of your purse? That's what happened -- Fred stole from Sam. Would you care if someone broke into your house and stole food from your refrigerator? Now you wouldn't mind if they were your friends. This guy is new to the crowd, doesn't bother to become friends with Sam, and steals from him.*

Max is arguing that the new trader is stealing because he is not socially integrated into the crowd. This belief conflicted with the exchange rule that the trader with the best, fastest market receives the trade.

Traders directly referred to the conflict when they were intimidating new traders into respecting the norms established by the crowd. In the process of fighting another trader, Alan says, “*There are rules and there are norms. For instance, this guy Dan shouldn’t be standing here.*” While the exchange rules gave Dan to right to stand in any position within the crowd, Alan is arguing that Dan’s behavior is not appropriate according to crowd norms, which hold that new traders should stand in less desirable positions within the crowd. Negative sanctions such as harassment were used to punish those who exhibited behavior that did not reflect respect for seniority.

**Negative Crowd Sanctions.**
Behavior that did not reflect respect for senior traders caused negative sanctions from the crowd, which could vary in verbal abuse and physical aggression. For instance, the following excerpt displays both.

When a senior trader, Ted, was harassing a new trader, Chris, he yelled over to the other half of the crowd and said “Shake the dog off on your side of the lot.” He was implying that Chris was a flea that had moved to his side of the crowd. Ted continued to complain about Chris and tried, with the help of five other traders, to physically squeeze Ted out of his position in the crowd. During the squeezing, Ted kept calling Chris a “New York Jew.”

Crowd harassment such as this usually followed a new trader’s attempt to take a large portion of a trade or shift to a better physical position. This relationship is also illustrated by the following observation in which a trader follows the exchange rules for bidding and faces resistance from more senior traders who expect her to split the trade with them.

Jen’s market was first, audible and best so she requested the whole trade. Members of the crowd disputed her right to do so. She said, "I was first and would like to do all 25." She said it louder. This angered Ed, another trader in the crowd. Ed started screaming, "You are so out of line." Jen said, "You just did 50 by yourself and Dave did 40 without splitting the orders. I’d like to do this myself." Ed started jumping up and down and screaming, "f*****g nasty girl" which causes everyone to laugh. Jen explained her side to Ed but he ignored her. Victor joined Ed and called Jen “a f*****g nasty girl.” Then Keith and finally Tom joined Ed in yelling at Jen. Ed started screaming loudly, "YOU WANT TO PLAY HARDBALL – THAT’S FINE WITH ME – I’M BETTER THAT WAY!" Jen stopped protesting and split the trade.

In this particular case, Jen is competitively bidding and is punished for doing so through the use of harassment, intimidation, and abusive language. Crowd members are threatening to make trading difficult for her in the future, which could negatively impact her future income.

A process examination of sanctions suggests that crowd sanctions do not simply compete with firm and exchange sanctions such that both are experienced and the stronger one influences behavior. Rather, crowd sanctions affect the assignment of firm and exchange sanctions by hindering or facilitating a trader’s work. Figure 2 illustrates the process of sanction assignment associated with Jen’s decision to split the trade with the senior traders. By doing so, she violates
the exchange rules and will receive an exchange sanction, if caught. She also risks a decrease in short-term pay from the firm because the she receives less financial benefit when the trade is split and, depending on her firm’s orientation, may receive an additional reduction in pay due to an exchange fine. At the crowd level, Jen increases the likelihood of receiving future trades by displaying respect for seniority, which, in turn, insures long-term pay from the firm. Thus, Jen’s motivation to split the trade is influenced by the positive sanctions from the firm, which favor productivity. Even if Jen’s firm is strongly opposed to breaking exchange rules, this process analysis suggests that the firm is likely to reward behavior it opposes because positive sanctions associated productivity are very strong.

Jen could have spoken to a floor official and in the next observation, Mike, a new trader, threatens to do so. Mike attempted to fill a broker’s order himself, was harassed by Jim for doing so, and threatened, “I’ll go get a floor official. We’ll see what he thinks.” Jim yelled, “Go tell the teacher! Go tell the teacher! There are rules and then are RULES. You don’t deserve to come down here and stand wherever you want and trade whatever you want!” Mike stopped arguing, split the trade, and did not speak to a floor official. In this particular example, Mike is choosing not to pursue the enforcement of the exchange rules.

Examining this from a sanctions perspective, Mike’s reasons may resemble that of Jen. Figure 2 displays the consequences of a trader reporting harassment to a floor official. The trader who reports harassment may psychologically benefit from knowing that the senior trader was punished for a rule violation and if the harassment was in relation to a specific trade, the trader may receive a larger portion after the floor official deliberates. This may result in a short-term pay from the firm for a good day of trading. The trader, however, may be blocked from future trades by trading crowd members, which will result in loss of long-term pay from the firm.
Trader concern regarding the crowd’s ability to hinder future trading was appropriate considering my observations in other crowds. The blocking of trading opportunities was exhibited in other instances and in other crowds. For instance, one day Bruce, a senior trader within a crowd, showed various people in his crowd a note that I could not see. From the behavior that followed, it appeared that the note involved instructions to block Rick, a new trader, from trading. When the next broker entered the crowd and started to announce an order, Bruce immediately said, “They’re all filled!” without hearing the price or the size. This statement implied that he would do the whole trade regardless of the price or quantity. Bruce repeated this behavior and thereby prevented Rick and the rest of the crowd from participating in the trades. Thus, Bruce blocked Rick’s opportunity to trade with the support and cooperation of other crowd members, who did not object or complain. Rick could only overcome this sanction by stating “They’re filled” faster than Bruce but this also meant that he was putting himself at great risk because he would not know the size or price of the transaction. Bruce was a successful trader with a lot of liquidity and could withstand the commitment to a large, bad trade but Rick was not in the same financial position.

Furthermore, by challenging the more favorable distribution for senior traders, the trader is inviting a common form of harassment that takes a perverse twist of the exchange's two-sided market rule. A trader must be willing at all times to give a buy and sell price for a particular asset. The market is offered without the knowledge of whether or not the requestor wants to buy or sell and it must be honored for a certain quantity of trades. As a form of harassment, senior traders will ask new traders to constantly state a two-sided market and take advantage of any inaccuracies or mistakes, which may occur frequently and even more often with a new trader. If the new trader fails to provide the two-sided market, the senior traders may report the new trader
to the floor officials, who then fine the new trader. Essentially, senior traders can cause an exchange sanction to reinforce desired crowd behaviors.

**Negative Sanctions Modified.** Sanctions from one group not only caused sanctions from another, but also modified other group’s sanctions. Many times throughout the study, traders acknowledged that the crowd’s sanctions clashed with the exchange sanctions and, occasionally, traders modified their sanctions in response. For instance, when a new trader entered Darren’s crowd, he sang a song several times throughout the day. Darren sang, "There's a new kid in town, and he's taking all my money, but I'm being good because I'm not saying anything." Darren is stating that the new trader is essentially stealing from him but that he is conforming to the exchange rules against harassment by not responding. Darren is not clearly obeying exchange rules but actually displaying a compromise between the conflicting systems. Darren’s song is a more subtle form of negative sanctioning whereby Darren signals annoyance to the new trader and causes the new trader to feel unwelcome, which is a form of intimidation.

On a number of occasions, I observed how the presence of a floor official prevented a trader from breaking exchange rules. For instance, my fieldnotes include an argument between Paul and Stan where Paul yelled at Stan for trading with the crowd and for not making his own markets. Paul yelled "Get off my back you big p***y" at Stan, implying that Paul was just copying his stated markets. Stan then stated, “I’d kick your ass if the floor official wasn’t standing there.” In this instance, the threat of a negative sanction from the exchange changed the assignment of a trading crowd sanction such that the harassment was limited to verbal attacks instead of physical. Paul did not simply calculate the likelihood of detection by the floor official and compare that to the benefits of harassing Stan and then decide one approach over the other. He actually modified the crowd sanction in relation to the exchange sanction.
Positive Sanctions. In some crowds, traders who participated in undesirable trades for the benefit of the public and/or the crowd received positive sanctions such as better access to future trades or more favorable physical positions in the crowd. This system of positive sanctions also conflicted with exchange rules regarding equality. According to the exchange, the best, fastest market receives the trade, regardless of past behavior, and physical position in the crowd is based upon arrival.

An example of a positive sanction is seen in a situation when Skip, a new trader is suddenly standing closer to where brokers announce trades. Scott said to me “This guy deserves to be here.” He explained Skip had helped with liquidity the prior day when the market took a severe downturn. In this instance, Skip is rewarded with a better physical position in the crowd. Skip’s new position in the crowd provides trading benefits such as a better view of screens and closer proximity to broker announcement of trades.

Positive sanctions for helping the crowd extended beyond better physical positioning and included the actual distribution of trades. For instance, a good trade was announced that was especially beneficial to those who participated in an undesirable trade for the public earlier in the day. Ron said "if [xxx] trades again, me, Lee and Ann should get to do the order because we were the only ones who were willing to buy them earlier." This positive sanction (future trades) reinforced behavior that involved trading to benefit the public or the crowd even if it did not benefit the specific trader. The exchange rules of equality run counter to any norms of reciprocity whereby the trader receives better access to trading based upon past behavior.

In short, some crowds desired behaviors that departed from the exchange rules so they used negative and positive sanctions to reinforce these behaviors. These sanctions were effective, in
part, because they lead to other sanctions from the firm and the exchange. In this study, trading
crowds prevented the completion of work by pretending not to hear the markets of punished
traders or by intimidating traders to not trade against the crowd. Since exchange violations were
not always seen directly by exchange officials and required reporting by witnesses (i.e., the
crowd), a hostile crowd would report exchange-level infractions with greater frequency.
Similarly, trading crowds could also facilitate work by favoring markets made by certain traders
or by allowing traders to stand in desirable physical positions within the crowd. By affecting the
trader’s ability to trade and thus, generate income, sanctions assigned by the crowd could have
consequences for positive sanctions from the firm.

SECOND-ORDER SANCTIONS

In the last section, I modeled the progression of sanctions resulting from a variety of
trader behaviors. In this section, I introduce and examine the role of second-order sanctions for
traders. Second-order sanctions are sanctions that depend upon or are affected by the sanctions
of another group. From the observations of trading environment, two forms of second-order
sanctions emerged, those that were intentionally structured and those that appeared
unintentionally. I will describe both types in more detail.

Intended Second-Order Sanctions. Such second-order sanctions are those specifically
tied to the sanctions of other groups. In this study, intended second-order sanctions were
observed in (1) the firm’s use of negative sanctions in relation to the exchange’s use of negative
sanctions, (2) the exchange’s use of negative sanctions in response to crowd negative sanctions,
and (3) the crowd’s use of negative sanctions in retaliation for exchange sanctions stemming
from a trader’s reporting of rule violations. These intended second-order sanctions differ from
the unintended sanctions in that those who assign the sanction are specifically doing so in response to a sanction that originates from another source (initial sanction).

While these second-order sanctions are meant to directly follow initial sanctions (i.e., exchange fines should follow after every incident in which a crowd member harasses new trader), the assignment of the second-order sanction depends upon the detection of the initial sanction. Much like the research on single-sanction assignments, expected detection plays a central role in the effectiveness of second-order sanctions.

Trading crowds always detected the assignment of an exchange sanction as they were the recipients of the sanction. Similarly, the firm always detected the assignment of an exchange sanction because such information was reported to firms. Thus, the relationship between the initial sanction and the second-order sanctions were tightly coupled in these instances.

Exchange officials, however, could only detect crowd sanctions if they happened to observe them or if a trader reported such behavior. The crowd members, due to the nature of trading, were able to detect trader behavior and assignment sanctions quickly because members of the crowd stood side-by-side throughout the workday and constantly monitored each others’ behaviors. Furthermore, they could detect when the floor officials were not present. Crowds had many opportunities to assign an initial negative sanction without causing a second-order sanction from the exchange. Thus, the relationship between exchange sanctions and crowd sanctions was not tightly coupled.

Shortly after I completed my observations, regulators issued a report on industry-wide deficiencies. The regulators described weaknesses in exchange oversight of trader behavior. The regulators reported that exchanges did not properly monitor trader behavior and the selective assignment of sanctions to rule violations. Since this study was conducted, all exchanges have
instituted programs to improve their monitoring of trader behavior and protect those who report violations. Thus, this reform was meant to address two forms of second-order sanctions: strengthening the relationship between the exchange’s second-order sanctions in response to crowd sanctions and weakening the crowd’s retaliatory second-order sanctions that followed an exchange sanction.

**Unintended Second-Order Sanctions.** Unintended sanctions are those that are dependent on an initial sanction from another group but were either not designed to be coupled with the initial sanction and, because this link is unknown or unaccounted for, it may be manipulated by those who assign the initial sanction. These unintended second-order sanctions appeared when crowds caused exchange and firm sanctions. These second-order sanctions are particularly problematic in situations where a group reinforces behaviors that it opposes.

Earlier, I discussed a way in which the crowd would harass new traders by excessively asking for a two-sided market. Over time, the exchange recognized the way in which the exchange sanction was unintentionally tied to crowd sanction such that new traders asked for a two-sided market with unreasonable frequency as a means to intimidating new traders. The senior crowd members would then report the new traders’ lack of complete markets to a floor official such that the exchange would fine the new trader. By doing so, the exchange unintentionally endorsed a form of intimidation. Once the exchange realized that this second-order sanction existed, it adapted exchange rules and sanctions such that definitions of harassment included excessive request of markets.

Unintended endorsement of undesirable behavior was a particular problem for firms that relied upon two sources of information for judging trader conduct: productivity and exchange sanctions. The nature of the work forced the firm to rely on a limited set of information
regarding trader conduct, which emphasized outcome measures. While the firm controlled the
assignment and the terms of the trader’s income, which would appear to be the most influential
form of control over the trader, the variable portion of a trader’s pay, which is often the largest
portion of income, is typically dependent on the trader’s performance in the trading crowd. Even
if firms strongly endorsed the exchange rules, they do not have information on trader conduct
other than exchange sanctions, such as fines, and outcome variables, such as trading activity. As
the previous analysis suggests, second-order exchange sanctions were not tightly coupled with
the crowd sanctions. This weakness allowed for the majority of the firm’s sanctions to come
from outcome measures such as productivity. This productivity was heavily influenced by the
assignment of crowd sanctions. If the crowd sanctions involved the blocking of traders then this
would cause a firm sanction of lower pay. Likewise, if the trader exhibited specific crowd-
endorsed behaviors, the crowd would facilitate a trader’s work and cause the firm to assign a
positive sanction. Many firms did not intend to tie firm sanctions to crowd sanctions but by
rewarding productivity, which was influenced by crowd sanctions, even the exchange-oriented
firms inadvertently endorsed the crowd sanctions.

**IMPLICATIONS**

Past research suggests that certain attributes of sanctions matter when evaluating their
effectiveness. For instance, previous researchers discuss the importance of sanction severity
(Arvey and Ivancevich, 1980; Burgess and Akers, 1966; Grasmick and McLaughlin, 1978;
Hollinger and Clark 1982, 1983; Trevino, 1992), proximity to behavior (Burgess and Akers,
1966), celerity (Burgess and Akers, 1966; Heckathorn, 1990; Hollinger and Clark, 1983), and
frequency of sanction assignment (Arvey and Ivancevich, 1980; Burgess and Akers, 1966;
Tenbrunsel and Messick, 1999). The introduction of second-order sanctions is not intended to
discount the effects of sanction severity, celerity, detection on employee behavior. Rather, this study is adding to these findings by introducing the complexity of multiple sources of sanctions and modeling the way in which sanctions interact with one another. By broadening the focus, a simple additive model of sanctions, in which one sanction offsets another, expands to a more dynamic model in which sanctions cause and modify one another.

To illustrate the contribution of second-order sanctioning, consider Arvey and Ivancevich’s (1980) proposition that punishments which occur frequently and immediately after sanctioned behavior are more influential than sanctions which occur infrequently or are imposed after time has passed. While Arvey and Ivancevich (1980) propose frequency and celerity are important predictors of sanction influencing desired behavior, their analysis does not account for the effects of unintended second-order sanctions and the ability for other groups to cause and modify a sanction. For instance, the exchange could have increased the frequency and celerity of the negative sanction regarding two-sided markets but doing so would promote more undesirable behavior (harassment by crowd members), as the crowd sanctions manipulated the enforcement and effect of this particular exchange sanction. Thus, the exchange sanction needs to be considered within the larger system of sanctions.

If this analysis is extended to common issues regarding auditor independence, the importance of second-order sanctions becomes even more apparent. Assume an accountant is encouraged by colleagues and a manager to provide a favorable audit evaluation for a valuable firm client. The accountant may be inclined to do so if it means that such behavior will lead to approval from the client, the coworkers, and the manager, whom the accountant must face on a regular basis. Their approval leads to positive performance ratings for the accountant, which provide positive signals to the division and the larger organization that the accountant is
deserving of positive sanctions such that rewards existing at these levels are more likely to be
directed to the accountant. Conversely, a critical audit of a valuable client, despite the manager’s
expressed expectations of a positive audit, is likely to generate negative sanctions that include
social disapproval, lower performance ratings, and fewer resources. Even though the
accountant’s behavior was desirable at the organization level, the above mentioned negative
sanctions would be negative signals to the division and to the larger organization, making it less
likely for the accountant to be rewarded. Thus, when the employee exhibits organizationally
desirable behaviors, the employee may receive fewer positive sanctions and possibly some
negative sanctions at the organization level due to the effects of sanctions at the workgroup level
or the client. In essence, the organization ultimately rewards behavior that it formally prohibits.
Because the organization relies upon the signaling effects from the immediate work
environment, praise at the workgroup level provides a positive signal to the organization to do
the same.

Shortcomings

This study was conducted in an environment where employees spend more time outside
their firm than inside their firm’s offices. While some employees such as external auditors,
lawyers, consultants, and service repairpersons work outside the offices of their firm, many do
not. It is difficult to say how much working outside the firm affects the development and use of
second-order sanctions. To some extent, this effect can be examined in relation to the second-
order sanctions experienced at the exchange level. As traders worked on the premises of the
exchange, spatial distance did not exist; second-order sanctions, however, were still observed
between trader sanctions and those of the exchange.
In addition to distance between employer and employee, this study involved two separate organizations, the firm and the exchange, which governed the work of traders and possessed the authority to assign sanctions. This is not representative of a typical work arrangement and the degree to which this affected the display of second-order sanctions is difficult to discern. The fact that second-order sanctions were observed in relation to both organizations speaks to the possibility of their existence regardless of whether the organization compensates an employee or oversees how work is conducted. Many individuals work for subsidiaries or joint ventures that involve larger organizations as well as government regulators who oversee employee behavior. This multiple organization oversight appears in corporate settings and may be growing as firms expand and collaborate on joint ventures.

Lastly, there was no means of tracking each firm’s response to behavior exhibited on the trading floor, which leaves some uncertainty about each firm’s sanctions in relation to the observed trader behaviors. Because every trader in a crowd worked for a different firm, it was impossible to observe all firm reactions to every trader’s behavior at the close of the market. Once again, it is difficult to know how this lack of data affects the findings related to second-order sanctions. What data are unavailable at the firm-level are available at the exchange-level, where second-order sanctions also occur.

CONCLUSION

Roy (1954: 256), in his discussion of the shop floor, describes this conflict between the informal and formal systems as one in which, “operators and their ‘allies’ joined forces in certain situations in a manner not only unmistakably at variance with the carefully prepared designs of staff experts but even in flagrant violation of strongly held managerial ‘moral principles’ of shop behavior.” This conflict between workers and managers is a classic organizational problem that
presents considerable challenges in a current era of corporate scandals when more than worker productivity is at risk.

The trader data support findings of past studies that documented the use of positive and negative sanctions in other work contexts (Arvey and Ivancevich, 1980; Ball, Trevino and Sims, 1994; Barker, 1993; Butterfield, Trevino and Ball, 1996; Hollinger and Clark, 1983; Hegarty and Sims, 1978; Tenbrunsel, 1998; Tenbrunsel and Messick, 1999; Trevino and Victor, 1992; Trevino and Youngblood, 1990; Trevino, 1992) and extends these findings by considering how the sanctions interact. The result is a dynamic process that involves second-order sanctions in which one sanction causes or modifies another. Understanding the nature of this relationship aids in the development of theory and interventions on the misalignment of the formal and informal systems within organizations (Tenbrunsel, Smith-Crowe and Umphress, 2003).
REFERENCES


### TABLE 1
CONFLICTING GROUP SANCTIONS

<table>
<thead>
<tr>
<th>Evidence of Sanction Conflict</th>
<th>EXCHANGE Sanction</th>
<th>EXCHANGE Rule</th>
<th>CROWD Sanction</th>
<th>CROWD Desired Behavior</th>
<th>FIRM Potential Sanction</th>
<th>FIRM Potential Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike attempted to fill a broker’s order himself and was harassed by Jim for doing so. Mike threatened, “I’ll go get a floor official. We’ll see what he thinks.” Jim yelled, “Go tell the teacher! Go tell the teacher! There are rules and then are RULES. You don’t deserve to come down here and stand wherever you want and trade whatever you want!” Mike stopped arguing, split the trade, and did not speak to a floor official.</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>Trader can join any crowd and trade. Physical position in crowd is based upon arrival.</td>
<td>Harassment</td>
<td>New traders can only participate in smaller and/or less desirable trades. They should also stand in less desirable physical positions within the crowd</td>
<td>Reduce pay for low productivity and exchange sanction (varied by firm); Increase pay for high productivity</td>
<td>Traders should be productive</td>
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<td>Jen says, &quot;I was first and would like to do all 25.” The broker ignores her. She says it louder. This angers Ed, another trader in the crowd. Ed starts screaming, “You are so out of line.” Jen says, “You just did 50 by yourself and Dave did 40 without splitting the orders. I’d like to do this myself.” Ed starts jumping up and down and screaming, “f<em><strong><strong>g nasty girl!” which causes everyone to laugh. Jen explains her side to Ed but he ignores her. Victor joins Ed and calls Jen “a f</strong></strong></em>g nasty girl.” Then Keith and finally Tom join Ed in yelling at Jen. Ed starts screaming loudly, &quot;YOU WANT TO PLAY HARDBALL – THAT’S FINE WITH ME -- I'M BETTER THAT WAY!&quot; Jen stopped protesting and split the trade.</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>The best, fastest market receives trade</td>
<td>Harassment</td>
<td>Traders with more seniority are allowed to trade full orders. Less senior traders must split trades with the crowd.</td>
<td>Reduce pay for low productivity and exchange sanction (varied by firm); Increase pay for high productivity</td>
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<td>A good trade came in that benefited some traders who had helped out by taking a bad public trade earlier in the day. Dave said &quot;if [ xxxx] trades again, me, Lee and Ann should get to do the order because we were the only ones who were willing to buy them earlier.&quot;</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>The best, fastest market receives trade</td>
<td>Reward with future trades</td>
<td>Traders who participate in undesirable trades for the benefit of the public and the crowd, are rewarded in the future.</td>
<td>Reduce pay for low productivity and exchange sanction (varied by firm); Increase pay for high productivity</td>
<td>Traders should be productive</td>
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<td>When a new trader entered Darren’s crowd, he sang a song several times throughout the day. Darren sang, &quot;There's a new kid in town, and he's taking all my money, but I'm being good because I'm not saying anything.&quot;</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>The best, fastest market receives trade</td>
<td>Harassment</td>
<td>New traders can only participate in smaller and/or less desirable trades</td>
<td>Reduce pay for low productivity and exchange sanction (varied by firm); Increase pay for high productivity</td>
<td>Traders should be productive</td>
</tr>
<tr>
<td>When Glenn, a new trader, tries to bid for a trade, he is told by John, “You need to show respect to the more senior guys. No one wants you here and I’m speaking for a lot of people.”</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>The best, fastest market receives trade</td>
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<td>Traders should be productive</td>
</tr>
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<td>When Ted was harassing a new trader, Chris, he yelled over to the other half of the crowd and said “Shake the dog off on your side of the lot.” He was implying that Chris was a flea that had moved to his side of the crowd. Ted continued to complain about Chris and tried, with the help of five other traders, to physically squeeze Ted out of his position in the crowd. During the squeezing, Ted kept calling Chris a, “New York Jew.”</td>
<td>Sliding scale of fines based upon infraction for those who harass. More serious infractions involve temporary or permanent suspension of right to trade.</td>
<td>Trader can join any crowd and trade. Physical position in crowd is based upon arrival.</td>
<td>Harassment Shoving</td>
<td>New traders can only participate in smaller and/or less desirable trades. They should also stand in less desirable physical positions within the crowd</td>
<td>Reduce pay for low productivity and exchange sanction (varied by firm); Increase pay for high productivity</td>
<td>Traders should be productive</td>
</tr>
</tbody>
</table>
FIGURE 1

DIAGRAM OF CROWDS, FIRMS and THE EXCHANGE

Firm A

Ta  Tb
Crowd 1

Crowd 3

Exchange I

Crowd 2

Firm B

Ta = a trader from Firm A who trades in Crowd 1 on the floor of the Exchange I
Tb = a trader from Firm B who trades in Crowd 1 on the floor of the Exchange I
FIGURE 2. Process Model of Second-Order Sanctions
Sanctions experienced by a trader in relation to respect for seniority

Firm Sanctions
(+) short-term pay

Crowd Sanctions
Further Harassment
Block future trades

Exchange Sanction
Crowd is fined

Firm Sanction
(-) long-term pay

Firm Sanctions
More future trades
(+) long-term pay

Firm Sanctions
(-) short-term pay

Exchange Sanction
Trader Fined
(-) short-term pay

Initial Sanction

Trader refuses to split trade

Trader receives more of trade

Trader reports exchange violation

New trader outbids A senior trader

Crowd Sanction Harassment

Trader splits trade with senior trader

Trader receives less of trade