

The Strange Symphony of the Stock Traders

by Jon Cartwright on 17 March 2011, 2:00 PM

Phones incessantly ringing, people shouting "Buy! Sell!" across the office, prices flashing across computer screens—it looks like chaos. But stock trading firms are actually home to a remarkable harmony, according to a new study. Researchers have found that, in at least one firm, traders synchronize their buying and selling behavior with amazing precision. And that seems to tie in with greater profits.

Sociologist Brian Uzzi of Northwestern University in Evanston, Illinois, and colleagues analyzed all trades taking place in a single firm of 66 employees over 2 years. As is usual in trading firms, the employees specialized in different markets—housing, autos, or health care, for example—so they had no obvious incentive to copy one another's behavior. Each trader typically bought or sold stocks about 80 times a day, which the researchers allotted to second-long time windows.

A 7-hour working day is roughly 25,000 seconds, so the chance of one employee's 80 trades randomly synchronizing with any of his colleague's is small. Yet Uzzi's group found that synchronous trading—that is, two or more employees trading in the same second—happened as often as 60% of the time. What's more, the individual [employees tended to make more money during these harmonious bursts](#), the team reports online this week in the *Proceedings of the National Academy of Sciences*.

"What I find most interesting is the surprising degree of coordination among them, on a scale of time that is so short—like down to a second," says applied mathematician Steven Strogatz of Cornell University, who was not involved in the study. "I can't really understand what mechanism is responsible."

One possibility is that the traders' synchrony is somehow lowering risk. That's what happens in the animal kingdom: a school of fish changes direction to evade a predator, for instance. If a fish wanders far beyond the group, it has a high risk of being eaten, whereas if it follows the group's collective behavior, the risk is low.

With stock traders, however, Uzzi and colleagues have a different explanation. They believe the synchronized behavior is simply a general indicator that the market is ripe for safe trading. Although each individual trader has a short-sighted view of his or her specialist market, the traders' collective monitoring of events in the outside world means that, at some point—indeed, at 1 second—group instinct prompts many of them to buy or sell together. The researchers found that instant messaging among traders spiraled at times of synchronicity,

which seems to support this view. Trading out of sync, Uzzi says, would mean the trader misses out on the time when the market information was optimal for a return.

Scott Page of the University of Michigan, Ann Arbor, thinks a similar phenomenon is sometimes seen on shopping channels, like QVC, when a trickle in sales is interrupted by a rush of people buying together. "In [this] case, I would guess that some sort of threshold was crossed or some new piece of information entered the picture that had positive interactions with the other information," he says. "For example, someone might have texted in, 'Wow, used ones sell at 95% of this price on eBay!' "

Page stresses that this is different from the bandwagon effect, which occurs when people copy one another's behavior after a major event. If this were happening, he says, trades would exhibit "a slow roll followed by a speed up."

Uzzi thinks trading firms could capitalize on the phenomenon by giving their employees more money to trade when they are in sync. But he warns that the traders themselves must never be told about the decision. "It is well-known that once people become self-conscious of their own behavior, their behavior changes," he says.