

# Traders who 'sync up' make more money: study

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(PhysOrg.com) -- Long-standing problems are quite often solved simultaneously by various people working alone. Take, for example, naturalists Charles Darwin and Alfred Russel Wallace, who separately proposed the theory of evolution by natural selection. Or French physicist Edme Mariotte who independently landed on what is now known as Boyle's law of gases, without knowing that Robert Boyle had just done the same. Robert King Merton, the grandfather of social science, called it the concept of multiples. Most discoveries and inventions, he said, are made by multiple independent individuals unintentionally acting in sync, as opposed to by a single genius. It's not that people are intentionally cooperating, but rather, working in sync seems to increase the probability a problem will be solved.

A team composed of a [sociologist](#), an engineer, and an economist at the Kellogg School of Management has now found a case to clearly demonstrate the truth of this slippery concept. By analyzing the actions of financial traders who buy and sell stocks, they found that trading in sync increased profits. And further, they found that [synchrony](#) arose spontaneously via instant messaging rather than through the direct guidance of a news broadcast or a mandate from a leader.

“The instant messaging data has allowed us to make a really a unique contribution to the field of finance,” says Kathleen Hagerty, a professor of finance at the Kellogg School and an author on the paper published in the *Proceedings of the National Academy of Sciences*.

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## **Animal Ties**

The Kellogg team chose to study traders because their environment is fluid and unpredictable—analogous to that of synchronously chirping cicadas during the mating season. Animals are thought to manage risk through synchronous behavior that spontaneously arises without leadership. Thus, it is most apparent when risks loom. In the case of cicadas, synchronous chirping throws predators off their trail. Likewise birds often launch simultaneously in response to a loud bang and form a dense group in the air. In doing so, they are thought to gain a heightened ability to collectively access and process information from widely distributed sources.

“The reason sync is thought to exist is that any single animal on its own cannot process the complex information they’re sometimes faced with. So when complexity increases, the animals appear to manage it better with a collective response that emerges from their individual responses, even though they are not trying to coordinate,” explains Brian Uzzi, a professor of management and organizations at the Kellogg School and another of the paper’s authors. “We’ve seen this in nature and we were excited about the prospect of it happening in human systems.”

In animals, synchronized behavior is mediated through vision, sound, odor, and other sensory cues. But in humans, the catalysts and payoffs have been unclear because human senses are not as tuned to the environment as they once were. Instead, we have become sensitive to signals coming from various devices.

This fact was clear to Hagerty, Uzzi, and Serguei Saavedra, an associate research professor at Northwestern and lead author of the paper, as they

tapped into more than 2 million instant messages sent between 2007-2009 by financial traders scrambling to buy or sell stocks in a fluctuating market. The more the instant messages came in waves—different from what would be expected if the IMs were sent and received randomly, as in casual conversations—the more synchronous trading became. And the higher the traders' synchrony, the more likely they were to dodge losses.

## **A Chorus of IMs**

Instant messaging—commonly called “IMing”—is part of a trader's daily routine. As ever-changing news on the housing market, the Federal Reserve, job figures, bankruptcies, and other global data pours in, traders need to quickly figure out which information applies to their stocks and what should be done about it. No one person could successfully sift through the flood alone, so traders try to figure out the meaning by IMing bits and pieces of information with their IM network of contacts.

“For a long time we've known that people trade stocks based on information,” Hagerty explains. “If big news comes along, like a blown-up refinery in Libya, there's a good chance people will trade on it. But it's not like they just read the news and press ‘buy’ or ‘sell.’ The time to trade is after they're fairly sure about what the news means to their stock, but before other people move on it.” She suggests that IMing speeds up the process of picking the right moment.

As waves of IMs formed—as opposed to a random distribution throughout the day—individuals increasingly traded within seconds of each other...and paused at the same time, too. What is notable about these synchronous trades was that individuals trading during the same interval typically dealt with unrelated stocks, ruling out the idea that the market was directly guiding their choices. Instead, cues from the market

triggered IMs, which in turn influenced synchrony.

“If external stimuli were guiding trades, the stock market would be easy to figure out. But it’s not,” Uzzi says. “Synchronization is telling us something unique about the system that no individual trader could tell you on their own.”

Finally, the window to qualify trades as simultaneous was roughly seconds, meaning that traders were not simply following one another—a phenomenon known to ecologists and economists alike as herding behavior.

## **Wisdom of Crowds**

The more an individual traded in sync with others, the better their performance. Synchronous trading, the authors conclude, indicates a uniquely beneficial time to trade. In other words, emergent crowd wisdom silently helps people reach good decisions on their own.

“In economic classes they tell you about variables, but they neglect emergent patterns,” Saavedra says. “Instant messaging is part of traders’ daily routine—one of many—and our study says these daily routines actually have some kind of an impact. Via synchrony, these little routines can make your performance increase or decrease.”

If researchers can figure out the specific triggers of synchrony in other systems, organizations might be able to bolster those activities in order to succeed. Like traders, national security advisors and disease control agencies face a flood of uncertain information each day within articles, texts, blogs, IMs and tweets. Might how they disseminate the news among themselves increase synchrony and subsequently improve their ability to preempt an attack or curb in infectious outbreak?

Before synchrony can be designed, however, Uzzi says it is important to learn how to avoid stimulating negative simultaneous actions. For example, when everyone on the highway turns to stare at an accident, a traffic jam can form. Or if everyone runs for a single exit to escape a fire, they can cause a stampede. Uzzi says the best way to differentiate between the two paths will be to closely analyze natural systems in which synchrony works. He has repeatedly uncovered ways in which human systems mirror animal systems. And in the case of synchrony, revealing it may be as important as remembering a long-forgotten friend during a time of need.

“The idea that collective genius can surpass the intellect of a single person is very radical,” Uzzi says. “But I think we are entering a time right now where there is a growing sense that collective dynamics may help us solve tough problems that a single genius simply can’t.”

**More information:** Synchronicity, instant messaging, and performance among financial traders, Serguei Saavedraa, Kathleen Hagerty, and Brian Uzzi, *Proceedings of the National Academy of Sciences*, Published online before print March 14, 2011, [doi:10.1073/pnas.1018462108](https://doi.org/10.1073/pnas.1018462108)

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