

What causes herd behavior in financial markets and what is its impact?

When financial markets behave frantically, the financial commentary often attributes such behavior to investors' animal, "herd" instincts. Preferring rational explanations, economists have picked up the notion and strived to describe situations when investors "herd" in a rational fashion, albeit initially outside the sphere of finance (in areas such as fashion or technology choice). Such informational herding arises in situations where people observe the actions of others, derive information from them and then, seemingly disregarding their own information, follow the majority action.¹ Applying this idea to financial markets, one could argue that a few early, perhaps incorrect, movements by visible traders induce others to follow, causing discontinuous price jumps in one direction or the other with prices deviating far from the asset's fundamental value. So can rational herd behavior at least partially explain persistent price spikes and crashes, linked movements across national boundaries, and generally "crazy" market behavior?

Early work² came to the rather disappointing conclusion that at least in standard, simple financial market trading settings herding is impossible. The intuition for the negative result is quite simple. When sticking to standard financial models that have "informationally efficient" prices, then these prices will at least partially reveal the information contained in people's trading behavior. Suppose many people sell. Then someone with favorable information would downgrade his expectation. But at the same time prices also fall and just enough to stop him from "joining the herd" and selling. Hence we are left with a total absence of theoretical herding in financial market trading models with efficient prices. There are three common reactions to the negative result: either one believes that in situations with apparent herding, market prices are not efficient, traders are not rational or one concludes that informational herding theory is simply not relevant for financial markets.

Concerned that the discipline was being too quick to dismiss the importance of rational herding in financial markets, we (Park and Sabourian, 2008; sponsored by the ESRC World Economy and Finance Programme), explored a different route. Examining a richer framework than earlier work, we identified necessary and sufficient conditions for herd behavior to occur in financial markets with efficient prices. Moreover, we showed that herd behavior leads to higher price volatility, lower liquidity, and that it causes strong short term deviations in the price discovery process.

A key difference between herding in our model and herding in "standard" models without efficient prices is that herding in financial markets occurs only when information in the economy is of a certain nature. For herding to happen information must be *bi-polar*. Someone who receives such information considers the status quo less likely than before and considers extremely good and bad outcomes more likely. Put differently, this information is a classic case of "mixed messages". For instance, it might be that a company wishes to merge with another but that this is subject to regulatory approval. Likewise, herding can be avoided, if information is such that people systematically consider bad outcomes more likely than good ones (or vice versa). Finally, the flip side of herding is contrarianism, a situation in which people act against the crowd. We show that such behavior occurs if and only if information is "single-polar" which means that people consider the status quo more likely than extremely good or bad outcomes.

¹ Banerjee (1992) and Bikchandani, Hirshleifer and Welch (1992) pioneered this line of work.

² See Avery and Zemsky (1998).

Examples for bi-polar information are easily found in today's market environment. Consider, for instance, the situation that markets found themselves in on September 29, 2008, the day when the United States Congress rejected the first version of the "Bailout Bill". Many future scenarios were imaginable: the bill might be re-introduced, perhaps with slight modifications, a worse bill could go to the floor, or no bill at all would be passed. In this environment, it is imaginable that investors were pulled between two opposing possibilities each with dramatic consequences. They either thought that Congress was merely flexing its muscles with the ultimate intention of going with Treasury Secretary Paulson's recommendations or they thought that Congress would block any attempted bailout. Theory here predicts the potential for herd behavior.

The early negativity in the use of rational herding theory as an explanation for observed market behavior was also confirmed in experiments,³ proving that there is no intrinsic urge for people to herd. We too exposed our theory to experimental tests (Park and SgROI 2008a). While we found that herding did not occur as often as predicted by the theory, recipients of bi-polar information were indeed those that herded most often. Moreover, no competing behavioral theory was able to authoritatively explain the data better than our theoretical model.

There are important issues that have not yet been addressed theoretically. Herding theory is usually embedded in a model that does not allow people to time their actions. Yet in market frenzies and panics, the timing behavior of the alleged herders is of grave importance. Recall that a potential herder has bi-polar information and considers extremely "good" and "bad" outcomes to more likely than moderate ones. Then it seems intuitive that this person is likely to delay his or her actions to see in which direction the wind blows. Such "late" herd behavior may thus lead to much more pronounced price movements than predicted by the essentially static theory.

In a second set of experiments, we (Park and SgROI, 2008b) study this timing decision. We find that the people who receive bi-polar information do indeed delay their decision systematically relative to others. Moreover, compared to the no-timing setup, bi-polar information is a much stronger trigger for herd behavior with timing thus indicating that the Park-Sabourian theory has a strong bite when applied to behavior in real markets.

In summary, our theory shows how herding theory can be facilitated in a standard financial market model even with efficient prices. From the conditions that lead to herding we learn three things: first bi-polar information, mixed messages can lead to strong short-term price fluctuations. Second, herding can be avoided if information is interpreted unambiguously (people see either good or bad news). Finally, contrarianism or "stabilizing" behavior is observed when people consider moderate outcomes to be much more likely than extreme ones. This theory is thus a suitable intellectual framework to ponder policy suggestions aimed at avoiding painful financial crises. From the perspective of market information – the core focus of informational herding theory – to avoid painful short-term, herd-induced price swings new information that hits markets must not be so vague as to be a mixed, "bi-polar" message. Considering the events of the past year, rescuing one financial institution but not another is exactly the kind of mixed message that causes *rational* people to engage in behavior that induces wild price swings. Clear policies and rules seem to be the order of the day, rather than discretion and delays in policy-making.

³ See Drehman, Oechssler and Roeder (2005) and Cipriani and Guarino (2005).

References

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