

EXTRAIT



# *What drives the herding behavior of individual investors?*

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*What drives the herding behavior of individual investors?*

We introduce a new measure of herding that allows for tracking dynamics of individual herding. Using a database of nearly 8 million trades by 87,373 retail investors between 1999 and 2006, we show that individual herding is persistent over time and that past performance and the level of sophistication influence this behavior. We are also able to answer a question that was previously unaddressed in the literature: is herding profitable for investors? Our unique dataset reveals that the investors trading against the crowd tend to exhibit more extreme returns and poorer risk-adjusted performance than the herders.

L'objet de cet article est d'analyser la dynamique du comportement moutonnier (ou de herding) des investisseurs individuels. Dans ce but, nous introduisons une mesure originale de herding permettant un suivi individuel de ce comportement. Sur la base de l'analyse de 8 millions de transactions, réalisées par 87 373 investisseurs individuels sur la période 1999 - 2006, nous mettons en lumière la persistance temporelle de ce comportement ainsi que le rôle prépondérant joué par les performances passées des portefeuilles et la sophistication des investisseurs. La mesure proposée nous permet en outre de répondre à une question peu abordée dans la littérature : le comportement de herding est-il profitable à l'investisseur ? Nos résultats indiquent que les portefeuilles des investisseurs les moins moutonniers présentent d'avantage de rendements extrêmes et de plus faibles couples rendement/risque que les autres investisseurs.

## *What drives the herding behavior of individual investors?*

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### 1. INTRODUCTION

The herding behavior is defined in a broad way as an investor's imitation of the actions of others. Devenow and Welch (1996) emphasize three reasons for herding.<sup>1</sup> The first reason is payoff externalities (the outcome of an action is increasing in the number of agents undertaking it). For instance, investors tend to trade at the same time to benefit from a deeper liquidity (see Admati and Pfleiderer, 1988; Dow, 2004). The second reason is reputational concerns and issues related to the princi-

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1. Herding can be rational or irrational. Irrational herding is extremely difficult to capture empirically because it is driven by fashion and fads. We therefore do not address this issue in the rest of the paper.

pal-agent theory (see Scharfstein and Stein, 1990; Rajan, 1994; Graham, 1999). When the performance of a manager is assessed relative to a benchmark (*i.e.*, by using the average performance of other managers, or the performance of a market/industry index), it is quite tempting for her to mimic the benchmark. By doing so, the manager sacrifices the potential to perform better than average but hedges herself against a poor relative performance. It is often said that the manager hides in the herd. Finally, the third explanation for rational herding is informational externalities. In Bikhchandani, Hirshleifer, and Welch (1992) and Welch (1992), investors acquire (noisy) information by observing the actions of the other agents. The externalities may be so strong that an investor can voluntarily decide to ignore her own information. In the most extreme cases, individuals' actions do not carry information anymore because they result only from the imitation of others' actions. In that case, an informational cascade occurs.

Early studies such as Lakonishok, Shleifer, and Vishny (1992) investigate a method to empirically measure correlated trading across groups of investors. The idea underlying the measure proposed by the authors (the LSV measure, hereafter) is to quantify the buying pressure on a given asset for a homogeneous subgroup (pension funds, mutual funds, individual investors). For the market as a whole, each purchase is balanced by a sale. However, for a given subgroup of investors and a given asset, there can be an excess of purchases or sales, indicating that the investors in the subgroup herd. After the seminal work of Lakonishok, Shleifer, and Vishny (1992), herding among investors has been the subject of a number of empirical studies, which are divided in two categories. The first category primarily addresses institutional investors and the second category addresses individual investors. The present paper belongs to this second stream of the literature.

The mimetic behavior of U.S. mutual funds and institutional investors has been scrutinized (Lakonishok, Shleifer, and Vishny 1992; Grinblatt, Titman, and Wermers, 1995; Wermers, 1999). Similar studies have been performed outside of the U.S., in particular in Germany (Oehler, 1998; Frey, Herbst, and Walter, 2007), the United Kingdom (Wylie, 2005), Portugal (Loboa and Serra, 2007) and Poland (Voronkova and Bohl, 2005).

In the second category of studies, targeting individual investors, the number of studies is lower. These studies have been performed in the

U.S. (Barber, Odean, and Zhu, 2009), Germany (Dorn, Huberman, and Sengmueller, 2008), Israel (Venezia, Nashikkar, and Shapira, 2011) and China (Feng and Seasholes, 2004). All of these studies demonstrate that the trades of individuals are significantly correlated. The herding behavior is clearly stronger for individuals than for fund managers and it exhibits a strong persistence over time (Barber, Odean, and Zhu, 2009). This behavior is positively and significantly correlated with the volatility of the market returns (Venezia, Nashikkar, and Shapira, 2011). Addressing the drivers of these findings, Barber, Odean, and Zhu (2009) show that psychological biases contribute to the herding behavior. These biases, for instance, lead investors to buy stocks with strong recent performance or with an abnormally high trading volume. In an original way, Feng and Seasholes (2004) demonstrate a positive relationship between the herding behavior of Chinese investors and their trading location.

Despite its popularity, the LSV measure suffers from some drawbacks. In particular, it does not permit for an evaluation of the herding level of a given investor, and thus, fails to evaluate herding persistence over time at the investor level. Furthermore, the drivers of the individual herding behavior cannot be investigated.

A key contribution of this paper is to provide a new measure of herding behavior at the individual level. Our measure (the Individual Herding Measure, denoted IHM hereafter) evaluates the individual herding for a given quarter as the weighted sum of the signed LSV measures of the stocks for which changes in holdings, for the quarter under consideration, occur. This measure allows for tracking dynamics of individual herding and therefore has the potential to highlight sources of individual heterogeneity. We conduct an empirical analysis of the herding behavior of individual investors using a unique database of the trading records of 87,373 investors for the 1999-2006 period. Our results demonstrate a high level of herding and a significant persistence of this behavior over time at the investor level. Our analysis of the individual heterogeneity of the herding behavior shows that a poor past performance increases the propensity to herd in the next quarter. By using direct and indirect measures of sophistication (derivatives trading or portfolio value, for example), we show that sophisticated investors are less prone to herd after a poor past performance. However, the main contribution of the paper is to show that, contrary to the other

individual investors, those trading against the crowd improve their returns by doing so. Unfortunately, this premium is not sufficient to compensate for the higher risk that they bear. Consequently, they perform poorly, compared to the average investor.

This paper is structured as follows. In the first section, we describe the methodological framework and introduce our individual herding measure. In the second section, we present the data used in this article. The third section focuses on the herding behavior measured at the stock level. In the fourth section, we examine the level and the persistence of the herding behavior at the investor level and highlight the factors that impact this behavior. The last section concludes the paper.

## 6. CONCLUSION

Most studies focus on stock characteristics to explain the herding behavior of individual or institutional investors. By introducing a new individual measure that allows the herding behavior of a given investor to be evaluated over time, we are able to investigate whether the herding behavior can be explained by some investor attributes. In addition, this is the first study to analyze the relationship between individual performance and herding. Our primary findings are the following. First, by studying a unique sample of 87,373 French individual investors, we demonstrate the importance and the persistence of the herding behavior. Our results confirm, at an individual level, the observation made in previous studies that herding is much more pronounced for individual investors than for institutional ones. Second, we were able to show that sophisticated investors are less prone to herding. Additionally, we found an interesting link between past performance and mimetic behavior. It appears that an adverse performance decreases the incentives to gather information. When faced with negative performance, investors (and, in particular, unsophisticated ones) tend to herd in the next period. Finally, we provide original insights on the relationship between herding and performance. It appears that the investors who invest against the crowd improve their performance by reallocating their portfolio. However, we also found that these investors exhibit more extreme results and that they have lower Sharpe ratios than the rest of the population.