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Causes and consequences of short-term institutional herding

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ABSTRACT

This paper provides new evidence on the causes and consequences of herding by institutional investors. Using a comprehensive database of every transaction made by financial institutions in the German stock market, we show that institutions exhibit herding behavior on a daily basis. Herding intensity depends on stock characteristics including past returns and volatility. Return reversals indicate a destabilizing impact of herds on stock prices in the short term. Results from panel regressions suggest that herding is mainly unintentional and partly driven by the use of similar risk models. Our findings confirm the importance of macro-prudential aspects for banking regulation.

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1. Introduction

A growing body of literature established that investors exhibit herding, meaning the tendency of investors to “bunch up” on one side of the market. The literature suggests two major explanations for herding behavior: *intentional* herding occurs whenever traders ignore their own private information and intentionally follow the crowd, since they infer from observed trading behavior that others have superior information. In contrast, *unintentional* herding is mainly driven by widespread identical reaction to public information and signals, see, e.g., Bikhchandani and Sharma (2001). Distinguishing the causes of herding behavior is crucial for regulatory purposes and for discovering whether herding leads to market inefficiency and financial bubbles. According to Scharfstein and Stein (1990), Hirshleifer and Teoh (2003), and Hwang and Salmon (2004), intentional herding may destabilize stock prices and thus impair the proper functioning of financial markets. However, even unintentional herding may be inefficient, if the correlated trading is not driven by fundamental values. The current paper explores the herding behavior of institutional investors, specifically banks. This predominant class of investors in the stock market has the power to move the market and impact prices, particularly if they herd. This explains why it is important to investigate whether

institutional investors herd and, if so, the causes and the consequences of herd behavior for stock prices.

The literature on institutional herding has been severely handicapped by the unavailability of appropriate data which should be both, high-frequent and investor-specific. Typically, the positions taken by institutions on the stock market are published infrequently, if at all. For example, for US mutual funds and certain other institutional investors, reports of holdings are available only on a quarterly basis, see, e.g., Choi and Sias (2009) and Wermers (1999). Walter and Weber (2006) analyze herding for German mutual funds at a semi-annual frequency. Kremer and Nautz (forthcoming) show that empirical herding measures can be severely affected by data frequency. Low-frequent trading data also impedes the analysis of the price impact of herding. Since there is no resolution on, say, intra-quarter covariances of trades and returns, it remains unclear whether institutions are reacting to or causing stock price movements.

The empirical literature proposes several approaches to ameliorate these data problems. For example, Venezia et al. (2011) employ investment transactions provided by a large bank in Israel that allow to explore the herding behavior of investors on a monthly basis. Barber et al. (2009) circumvent the problem of low data frequency by using anonymous transaction data instead of reported holdings.¹ Chen and Hong (2006) exploit daily data from

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E-mail addresses: stephanie.kremer@fu-berlin.de (S. Kremer), dieter.nautz@fu-berlin.de (D. Nautz).¹ Since the data does not identify the trader, trades above a specific cutoff size are assumed to be institutional. According to Kremer and Nautz (forthcoming), evidence based on anonymous transaction data can lead to misleading conclusions.

the Taiwan Stock Exchange that provides for each stock information about the fraction of shares held by institutional investors. Although the data is not investor-specific, the relation between daily overall institutional ownership changes, stock attributes and subsequent returns sheds new light on the trading behavior of institutional investors and the price impact of herding.

The current paper contributes to the empirical literature on herding by using daily investor-specific data that directly identify institutional transactions. Our analysis therefore overcomes the data problems inherent in previous studies and provides new evidence on the short-term herding behavior of financial institutions for a broad cross-section of stocks on the German stock market for the period from July 2006 to March 2009. Moreover, the availability of daily, investor-specific data enables us to perform a panel econometric analysis of the causes of herding and its consequences for the dynamics of stock prices.

Our results show that financial institutions do indeed herd within a day. Herding intensity depends on stock characteristics as well as on past returns and stock volatility. However, in contrast to theories of intentional herding, herding is more pronounced in larger and more liquid stocks. Results from panel regressions support that the observed herding is rather unintentional. In particular, we show that herding intensity depends on past volatility in an asymmetric way, i.e. rising stock volatility leads to increased sell herding while buy herding measures decrease. This finding could be explained by the widespread use of similar risk measures that drives correlated sell activity after a rise in volatility.

If herding drives prices away from fundamental values, destabilizing effects of herds should be reflected in subsequent return reversals, see, e.g., Choi and Sias (2009). Our results support a destabilizing impact of herding on stock prices. Results obtained from panel regressions indicate that the destabilization of stock prices is particularly strong in case of sell herds. If destabilizing sell herds are partly caused by similar market-sensitive risk management systems, our results on the causes and consequences of herding emphasize the importance of a macro-prudential view on financial regulation.

The remainder of the paper is structured as follows. Section 2 reviews the theories behind herding behavior and summarizes the empirical literature. Section 3 introduces the data and Section 4 discusses the herding measures. Sections 5 and 6 present the empirical analysis of the causes and consequences of herding. Section 7 concludes.

2. Theory and empirical literature

2.1. Intentional versus unintentional herding

The term herding is used to describe the tendency of institutions or individuals to behave similarly, thus acting like a herd. Herding behavior can be either intentional or unintentional, see Bikhchandani and Sharma (2001). Unintentional herding occurs when institutions are attracted to stocks with certain characteristics such as higher liquidity (see, e.g., Falkenstein (1996)) or when institutions rely on the same factors and information, leading them to arrive at similar conclusions regarding individual stocks (see, e.g., Hirshleifer et al. (1994)). Moreover, professionals may constitute a relatively homogenous group: they share a similar educational background and professional qualifications and tend to interpret informational signals similarly. A prominent example is the common reaction of financial institutions to similar risk measures.

Intentional herding is more sentiment-driven and involves imitating other market participants, resulting in simultaneous buying or selling of the same stocks regardless of prior beliefs or informa-

tion sets. There are two major theoretical models that explain the rationale behind this behavior. According to e.g. see Bikhchandani et al. (1992), Banerjee (1992), Avery and Zemsky (1998) and Park and Sabourian (2011), rational traders copy the investment activity of other market participants because they infer (from observed trading behavior) that others have relevant information. The second explanation for herding behavior is derived from the reputation based model originally developed by Scharfstein and Stein (1990). According to this model, institutions or professional investors are subject to reputational risk when they act differently from the crowd.

Models of intentional herding typically assume that there is only little reliable information in the market. Therefore, traders are uncertain about their decisions and follow the crowd. In contrast, in the case of unintentional herding, traders acknowledge public information as reliable. Yet, since they interpret it similarly, they all end up on the same side of the market. Therefore, both types of herding are linked to the uncertainty and availability of information.

2.2. Causes of herding

Distinguishing between different causes or types of herding behavior is crucial for regulatory purposes and for discovering whether herding leads to market inefficiency. However, identifying the type of herding is not an easy task because a large number of factors may influence an investment decision and because the motives behind a trade are not discernable. The empirical literature explores the determinants of herding via the link between herding and information by considering variables that proxy, e.g., the availability of information.

2.2.1. Size

Lakonishok et al. (1992) investigate herding within a quarterly time span using a sample of US equity funds. They segregate stocks by size because the market capitalization of firms usually reflects the quantity and quality of available information. Thus, one would expect higher levels of herding in trading small stocks to be evidence in favor of intentional herding. Conversely, unintentional herding is more likely to occur in stocks with larger market capitalization because institutions have a higher commonality in information. In fact, Lakonishok et al. (1992) do find evidence of herding being more intense among small companies compared to large stocks. Recently, Choi and Sias (2009), and Venezia et al. (2011) confirm a greater extent of herding in small stocks. Following the literature, we measure firm size (*Size*) by the logarithm of the previous day's closing market capitalization of the specific stock.

2.2.2. Trading volume

A vast literature highlights the relation between information quality, market liquidity and information asymmetries. For example, Diamond and Verrecchia (1991) predict higher information asymmetry in less liquid markets. Suominen's (2001) model suggests that higher trading volume indicates better information quality.² We therefore use the trading volume (Vol_i) of a stock i as a proxy for information asymmetry. Intentional herding theory implies that lower trading volumes are associated with higher herding levels.

2.2.3. Feedback trading

As unintentional herding occurs due to simultaneous reaction to a common signal, a manifestation of this kind of herding is

² In the same vein, lower quality of information and lower market transparency may lead to higher herding levels in emerging markets compared to developed ones, see e.g. Voronkova and Bohl (2005).

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