



## Together we invest? Individual and institutional investors' trading behaviour in Poland<sup>☆</sup>

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### ARTICLE INFO

#### Article history:

Received 29 October 2008

Received in revised form 26 February 2009

Accepted 6 March 2009

Available online 16 March 2009

#### JEL classification:

G14

G15

G23

#### Keywords:

Herding

Behavioural finance

Market microstructure

Polish stock market

### ABSTRACT

This paper contributes to the debate about individual and institutional investors' trading behaviour with new evidence from the Polish stock market. While most existing studies focus on institutional investors' trading in developed markets, we test for the presence of herding during market up- and downswings on an emerging market. Our unique approach is to combine an established method relying on daily prices with institutional features of the Warsaw Stock Exchange. It enables us to separate individuals from institutions by examining two trading mechanisms with different investor structures. The empirical results suggest that individuals engage in herding during market downswings, while there is less evidence of imitating trading behaviour in bullish markets. Regardless of the state of the market, institutions' trading behaviour does not appear to exhibit herd behaviour. Further evidence suggests that herding by individuals becomes less pronounced over time.

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### 1. Introduction

The empirical literature follows two paths when investigating herding behaviour of market participants. The first one is broader and examines institutional investors, while the second strand appears to attract less attention and focuses on individual investors. There is mixed evidence regarding which investor type exhibits herd behaviour more strongly. This is partly due to the fact that there is no unequivocal definition of herding, as flocking together can be rational or irrational (Bikhchandani and Sharma, 2001). The primary reasons for rational, or spurious, herding are incentives for fund managers, shared preferences for particular stocks, and common reactions to the same news (Griffin et al., 2003), leading to efficient outcomes. Irrational, or intentional herding, by contrast, refers to trading activities that simply imitate others' trading decisions regardless of prior information.

Individuals have been shown in the literature to be more prone to intentional herding behaviour than institutions (Kim and Wei, 2002), while institutions are more likely to engage in spurious herding

(Wermers, 1999; Sias et al., 2001; Schmeling, 2007; Bushee and Goodman, 2007). However, as Griffin et al. (2003) conclude, the nature of herding is not universal and differs across exchanges and countries. Specifically, investors in emerging markets might exert herding patterns different from those observed in developed countries. For instance, Tan et al. (2008) find evidence of intentional herding in China among both domestic individual and foreign institutional investors, despite the differences in access to information and expertise between these two cohorts.

This paper contributes empirical evidence on individual and institutional investors' herding behaviour. Our unique approach to combine daily price data with institutional features of the Polish stock market enables us to test for herding among individual and institutional investors separately, thereby gaining insights into the investor type that is particularly prone to imitating trading behaviour.

The Polish stock market lends itself to such an investigation for a number of reasons. First and foremost, two quotation systems are operated in parallel by the Warsaw Stock Exchange (WSE) which enable us to separate institutional from individual investors. These trading platforms are a single-price auction which has existed since the exchange was opened on 16 April 1991, and a continuous trading system, introduced in July 1996. In this continuous system, only large liquid shares were traded, and a minimum trade size applied. As a result, and due to differences in microstructure features between these two trading systems to be discussed in Section 3, individuals were concentrated in the auction system, while institutions preferred continuous trading. Because of the co-existence of these two trading mechanisms at the WSE,

<sup>☆</sup> We have benefited from comments by Hugh Metcalf, Christian Salm, seminar participants at the Newcastle University Business School, and participants at the Money, Macro and Finance Research Group's 40th Annual Conference (2008), Birkbeck College, University of London. We also thank an anonymous referee whose comments substantially improved this paper. All remaining errors are our responsibility.

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we are able to separate individuals from institutional investors and to compare the trading behaviour of these investor groups.

Secondly, small local investors played a comparatively important role on the Polish stock market until large open-end pension funds entered the market in May 1999 as a result of the Polish pension system reform. Thirdly, the Polish stock market is an emerging market, on which herding is more likely to be observed than on mature markets due to, for example, incomplete information disclosure (Chang et al., 2000).

We test for the presence of herding behaviour in the single-price auction, where individual investors are concentrated, and in continuous trading mostly used by institutions. In light of Lakonishok et al. (1992), Wermers (1999), Chang et al. (2000), and Kim and Wei (2002), we expect to find empirical evidence of Polish individual investors engaging in herding behaviour. By contrast, should there be no indication of herds, this would imply that Polish individual investors are as proficient as institutional investors in mature markets. In addition, we investigate whether herding is exhibited more strongly during up- or downswings of the market, as Christie and Huang (1995) and Chang et al. (2000) report contrary findings.

Our results show individuals to engage in herding during market downswings, while there is less evidence of imitating trading behaviour in bullish markets. On the other hand, institutions' trading does not exhibit herd behaviour, regardless of the state of the market. Further evidence suggests that herding by individuals becomes less pronounced over time.

This paper demonstrates that an established methodology can be combined with institutional features of a market to differentiate between institutional and individual herding using easily available data on daily prices. By doing so, the researchers can overcome the problem of limited access to information about individual transactions or portfolio holdings. Further contribution lies in the new empirical evidence on herding for an emerging market in its early stage of development. Especially striking is the finding that institutional investors behave like their counterparts in mature markets, and individual investors gain expertise over time. We also report behavioural patterns in up- and down-markets different from those observed in other countries.

We review the relevant literature on herding in the next section. In order to give a better understanding of our testing setup, Section 3 describes the institutional background of the Polish stock market, before Section 4 introduces the dataset and the methodology. Section 5 presents the empirical results and Section 6 summarises our findings and concludes.

## 2. Literature review

The literature offers various definitions and economic explanations for herd behaviour. Intentional or irrational herding refers to buying or selling the same stocks simultaneously with other market participants regardless of prior beliefs or information about asset prices. If this is purely sentiment-driven, then such behaviour results in market prices failing to reflect fundamental information, with mis-pricing potentially leading to bubbles and crashes on financial markets. However, observed flocking together can also lead to news being incorporated in stock prices faster, for example if traders react to correlated information (Froot et al., 1992). Similarly, Lakonishok et al. (1992) report that institutions' trading activities have a stabilising effect on stock prices. In fact, herding can be rational at a single trader's level for either individual or institutional investors. Copying others' trading actions is beneficial for individual investors if the collective trading behaviour contains more information than one trader alone has (Banerjee, 1992; Welch, 1992; Bikhchandani et al., 1992), and it can be rational for institutional investors if a reputation among fund managers is to be maintained (Scharfstein and Stein, 1990; Graham, 1999). Similarly, investors share preferences for stocks with certain characteristics (Falkenstein, 1996). Collective investments in such securities are not intentional herding because they do consider prior beliefs.

A more detailed analysis of herding reveals that imitating trading behaviour can depend on the state of the overall market. In fact, there is growing empirical evidence that stock traders' responses to good and bad news are asymmetric (Grinblatt et al., 1995; Keim and Madhavan, 1995). In particular, McQueen et al. (1996) document that cross-autocorrelation in stock returns is asymmetric in up- and down-markets. Likewise, there is mixed empirical evidence on herding in market upswings compared to downswings. Chang et al. (2000) find herding in Taiwan to be more severe in bull markets than during bear phases, while there is no difference in herding between these two states of the markets in the U.S., Hong Kong, Japan, and South Korea, nor in the Chinese A and B markets (Tan et al., 2008). Christie and Huang (1995) report the U.S. stock market to be in accordance with rational asset pricing models even during periods of market stress. Hwang and Salmon (2004) examine the relative changes of herding activity over time for the U.S. and South Korea and find herding to be present in up- and downswings in both markets. Furthermore, they observe a return to fundamentals during crisis periods referred to as 'adverse herd behaviour.'

Institutional investors' trading decisions are believed to be less biased by behavioural aspects than those taken by individuals (Shiller, 1984; Kamesaka et al., 2003; Odean, 2008; Ekholm and Pasternack, 2008), so that institutions are, in general, less prone to intentional herding. However, most of the empirical literature investigating herding behaviour by institutional investors reports mixed evidence. While some studies find that institutions hardly exhibit herd behaviour (Lakonishok et al., 1992; Grinblatt et al., 1995), others report evidence of institutions flocking together (Nofsinger and Sias, 1999; Dennis and Strickland, 2002). Apparent institutions' herding can be attributed to the peer review system that fund managers are subject to, or to correlated information flows that these investors follow. As institutional investors collectively trade on these news, they speed up the incorporation of new information in asset prices and hence stabilise the market (Graham, 1999; Wermers, 1999; Sias, 2004). Finally, shared preferences for the same stocks as reported by Falkenstein (1996) can also induce herding among institutional investors. Further research shows that herd behaviour differs across institution types (Lakonishok et al., 1992). Specifically, pension funds are less likely to herd than other institutions (Badrinath and Wahal, 2002).

On the other hand, research on individual investors' behaviour discovers that these traders may engage in spurious herding if they follow the same signals (Shleifer and Summers, 1990). However, herding due to overreaction to recent news is classified as intentional herding, which individuals are likely to exhibit. According to Kim and Wei (2002), who investigate the Korean Stock Exchange, herding behaviour by individuals is more prominent than for institutions. However, Ekholm and Pasternack (2008) show Finnish individual investors to be more overconfident than institutions. The higher the degree of overconfidence, the less likely investors are to rely on others' behaviour rather than their own beliefs when making investment decisions. It can therefore be concluded that Finnish individuals are less prone to herding than institutions. Size can also matter. Since institutional investors prefer large-capitalisation stocks (Falkenstein, 1996), imitating trading behaviour is particularly prominent in these stocks, for which signals are not as noisy as for smaller stocks. There is, however, evidence of herding in smaller stocks (Lakonishok et al., 1992; Wermers, 1999), which could be an indication of herding behaviour by individual investors. In light of the mixed evidence on herding presented in previous studies, this paper contributes to a better understanding of this phenomenon by providing a detailed evidence of herding by individual and institutional investors and in stocks of different sizes.

## 3. Trading systems and institutional setting at the Warsaw Stock Exchange

The organisation of stock trading has been shown in the literature to have a substantial influence on the behaviour of traders, transaction volume, and stock prices (Amihud and Mendelson, 1987; Amihud and Mendelson, 1991). While in a continuous trading system the market is

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