



Do ADR investors herd?: Evidence from advanced and emerging markets

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ABSTRACT

This paper extends the research on investor herds to American Depository Receipts (ADRs). Using daily price data on 305 ADRs traded in US exchanges issued by corporations from 19 countries, we examine herding behavior in the market for ADRs within country and sector-based portfolios. There is significant evidence of herding behavior in the market for ADRs from Chile only regardless of alternative model specifications. On the other hand, we find a significant effect of the Asian crisis and the recent credit market crisis on herding behavior in ADR issues from Korea and the UK, respectively, suggesting a link between market crisis periods and herding behavior. Furthermore, we find no significant effects of currency rates (except Korea) or the performance of the market of origin on herding behavior among ADR issues. In the case of sector-based ADR portfolios, evidence of herding behavior exists in Basic Industries, Capital Goods, Food & Tobacco, and Textile & Trade, but only during periods of large market downturns. Overall, herding is more prevalent at the sector level than the country level for the markets for the ADRs.

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1. Introduction

Herding behavior in financial markets has attracted much attention over the past decade. The literature, in general, defines herding behavior as the tendency of investors to mimic the actions of other investors, moving in and out of particular securities, industries or markets in general as a group (Bikhchandani & Sharma, 2001). In the experimental economics literature, a number of earlier studies have established a link between speculative or irrational behavior of market participants and bubbles and crashes in financial markets (e.g. De Long, Shleifer, Summers, & Waldmann, 1990; Froot & Obstfeld, 1991; Hey & Morone, 2004, among others). Similarly, studies in the finance literature focus on pricing inefficiencies and argue that herding behavior can drive security prices away from equilibrium values supported by fundamentals and drive volatility in the market (e.g. Bikhchandani, Hirshleifer, & Welch, 1992; Blasco, Corredor, & Ferreruela, 2012; Nofsinger & Sias, 1999). An increasing number of published works in the literature have tested the existence of investor's herding behavior in a number of domestic and global markets. In general, the literature provides market specific results with the strongest support for herding behavior in emerging stock markets. Interestingly, the analysis of herding behavior has not yet been extended to American Depository Receipts (ADRs). Therefore, the main goal of this paper is to extend the research on herding behavior to the market for ADRs. To our best knowledge, this is the initial study testing herding behavior in the market for foreign stocks traded in the US.

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Several studies including [Christie and Huang \(1995\)](#), [Wermers \(1999\)](#) and [Chang, Cheng, and Khorana \(2000\)](#) have examined herding behavior in the US market; however, these studies have only focused on securities issued by US firms for which information is easily accessible relative to those issued by foreign firms. Studying herding behavior in the market for ADRs is different from prior studies on herding that focus on securities traded in a single market and also interesting for several reasons. First, unlike domestic securities traded in the US, ADR returns are affected by not only the risk factors specific to the US market where the ADR is traded, but also potentially driven by additional uncertainties related to exchange rate movements as well as the developments in the home market where the ADR is based on. One can argue that compared to investors focusing on domestic securities only, investors in ADRs are exposed to a wider array of risk factors which may create additional uncertainty, thus potentially leading to a greater tendency to suppress their own beliefs and act as a herd, in particular during periods of market stress. Second, focusing on ADR returns allows us to examine if herding behavior is more prevalent among investors in ADR issues from particular countries, providing us with clues on what might be driving investors towards such behavior. Such an analysis could also provide valuable insight to fund managers focusing on country specific portfolios as evidence for herding in a particular market would suggest greater challenges for diversification due to correlated actions of market participants. Third, in addition to country-based ADRs, we also analyze ADRs within sector-based portfolios in order to investigate possible sector effects in this market segment. For example, ADR investors might be interested in foreign firms in particular industries, say telecommunication, regardless of the country of origin. This may be an important source of herding behavior as one would have a more homogeneous group of ADR investors not only facing similar uncertainties specific to those industries but also facing a significant disadvantage regarding access to information relative to domestic investors in the corresponding home markets. Finally, herding behavior among ADR investors may be influenced by a number of factors including the risk factors in the underlying stock market (in our case, the US market), as well as uncertainties in the home stock market and the currency market. It is therefore possible to test whether it is the market stress in the underlying market, in the country of origin or shocks in the currency market which drives such behavior among investors of that country's ADRs.

Overall, this paper contributes to the literature by examining investors' herding behavior in the market for ADRs which, to our best knowledge, has not been studied in the literature. Using daily price data on 305 ADRs traded in US exchanges issued by corporations from 19 countries, we examine the cross-sectional ADR behavior with respect to movements in the US market index and test for possible herding behavior across country-based as well as sector-based ADR portfolios. In a recent study, [Chiang and Zheng \(2010\)](#) used daily sector returns from 18 advanced and emerging markets and found evidence of herding in some Asian and advanced markets (except for the US). Our study examines herding behavior from a different angle by focusing on the securities of foreign firms from a wide range of advanced and emerging markets.

Our tests of country-based ADR portfolios indicate evidence of herding behavior in the ADRs from Chile, Korea and the UK. The robustness tests suggest that the results are robust to alternative model specifications and that shocks in the currency market and the market of origin have no significant impact on herding behavior in the ADR market. Overall, we find that herding behavior is more prevalent for ADRs from Chile and the UK whereas, we observe asymmetry in herding behavior in the case of Korea where such behavior occurs during periods of large market losses only. On the other hand, no significant evidence of herding behavior is found in other country-based ADR portfolios suggesting that the ADR market is largely efficient in pricing these securities. We also run similar tests after classifying ADRs into different sectors based on the North American Industry Classification System (NAICS) codes and test whether herding behavior exists within sector-based ADR groups. The tests suggest that herding is more prevalent at the sector level in the ADR market with herding behavior observed in Basic Industries, Capital Goods, Food & Tobacco, and Textile & Trade during periods of large market downturns only. The finding of herding behavior during large negative market shocks is consistent with several studies including [Kahneman and Tversky \(1979\)](#) and [Kahneman, Knetsch, and Thaler \(1990\)](#) which suggest that investors are more concerned with potential losses than gains, further suggesting asymmetries in utility functions or assessment of risk by investors.

This paper is organized as follows. [Section 2](#) provides a brief review of the literature on ADRs and tests of herding behavior. [Section 3](#) provides the methodological details. [Section 4](#) presents empirical results on country and sector based ADR portfolios. Finally, [Section 5](#) concludes the paper.

2. Related literature review

2.1. Explanations of herding behavior

A number of studies in the finance and experimental economics literature have examined the possible motives behind herding behavior in financial markets. Studies including [Lux \(1995, 1998\)](#) and [Goldbaum \(2008\)](#) use the arguments of investor psychology and the level of access to information as main drivers of herd behavior in the market. A similar psychology-based argument is offered by [Devenow and Welch \(1996\)](#) where following the market consensus creates a sense of security among less informed traders. On the other hand, studies including [Avery and Zemsky \(1998\)](#), [Shleifer and Summers \(1990\)](#), [Froot, Scharfstein, and Stein \(1992\)](#) and [Chari and Kehoe \(2004\)](#) argue that information-driven motives are behind herding behavior as the actions of more informed traders reveal valuable information to investors who have limited access to information. Other theories use informational cascades to explain herding behavior. In this strand of the literature, studies including [Banerjee \(1992\)](#), [Bikhchandani et al. \(1992\)](#) and [Shiller \(2002\)](#) suggest that investors who do not have access to private information of other investors make decisions sequentially, i.e. they get signals from other investors' actions and make the same choice as them independently of their own private information. Finally, studies including [Scharfstein and Stein \(1990\)](#), [Palley \(1995\)](#), [Maug and](#)

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