What drives herding in oil-rich, developing stock markets? Relative roles of own volatility and global factors

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ABSTRACT

The main goal of this paper is to formally establish the volatility-herding link in the developing stock markets of the oil-rich GCC countries by examining how market volatility affects herd behavior after controlling for global factors. Using a regime-switching, smooth transition regression model (STR), we find significant evidence of herding in all Gulf Arab stock markets, with the market volatility being the more paramount factor governing the switches between the extreme states of non-herding and herding. The global variables comprised of the U.S. stock market performance, the price of oil and the US interest rate as well as the risk indexes including the CBOE Volatility Index (VIX) and the St. Louis Fed's Financial Stress Index (FSI) are found to be significant factors governing the transition to herding states. The findings stress the effect of contagion in financial markets, despite the restrictions established by the GCC policymakers in order to protect their markets.

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1. Introduction

The literature on herd behavior in financial markets has been expanding rapidly in recent years, partly due to the prolonged market crisis that was originated in the U.S. financial markets and later

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spread to global markets.[1] Although earlier studies establish a logical link between market volatility and herd behavior (e.g. Bikhchandani, Hirshleifer, & Welch, 1992; Christie & Huang, 1995), none of the studies in the literature have empirically examined the relative roles of a market's own volatility and external factors in driving market states where herd behavior is observed. This is especially of concern for developing markets that are more prone to global effects. Given the suggestion in the literature that herd behavior might contribute to market volatility and pricing inefficiencies (e.g. Bikhchandani et al., 1992; Nofsinger & Sias, 1999 and more recently Blasco, Corredor, & Ferreruela, 2012), examining the relative roles of domestic market volatility and external factors in developing stock markets can provide additional valuable insight to policy makers regarding the development of market mechanisms to mitigate the negative effects resulting from herd behavior.

Earlier studies including Christie and Huang (1995) and Chang, Cheng, and Khorana (2000) suggest that investors will be more likely to suppress their own beliefs and copy the behavior of others during periods of market stress, implying that market volatility is an important factor that may trigger herding. Regime-based tests of Balcilar, Demirer, and Hammoudeh (2013) suggest that market states during which herd behavior is observed are indeed associated with crashes and extreme volatility periods. Focusing on extreme market movements, studies including Kodres and Pritsker (2002), Patev and Kanaryan (2003) and Karunanayake, Valadkhani, O'Brien (2010) reiterate that bad news and financial crises contribute to market volatility and herd behavior.[2] Similarly, Jurkatis, Kremer, and Nautz (2012) argue that herding intensity depends on stock characteristics including past returns and volatility in an asymmetric way, that is, rising stock volatility leads to increased sell herding while buy herding measures decrease. Overall, there is sufficient evidence in the literature associating market volatility with herd behavior, with the relationship displaying an asymmetric pattern relative to the sign of the market direction. However, the mechanism in which a market's own volatility influences herd behavior is yet to be explored. Furthermore, considering the fact that emerging markets are especially prone to global factors, a study that formally distinguishes between a market's own volatility and global factors provides a new perspective to investor behavior in developing markets that has not been presented in prior studies.

There are several contributions of this study. First, we explore the relative roles of a market's own volatility and global factors in driving herd behavior in developing stock markets, with a focus on the cash- and oil-rich Gulf Cooperation Council (GCC) stock markets – Abu Dhabi, Dubai, Kuwait, Oman, Qatar and Saud Arabia. Prior studies in the literature base their tests on the assumption of a link between a market's own volatility and herd behavior without explicitly modeling the volatility-herding link in their models. Therefore, this study extends the literature on herding by formally exploring the role of a market's own volatility on herd behavior. Second, this study contributes to the literature on emerging markets from a new perspective by exploring the effects of the global financial environment on herd behavior after controlling for the local volatility factor in the stock market. Separating the local and external factors in the model can provide valuable insight to the mechanism in which herd behavior develops in a stock market and aid policy makers in their regulatory tasks. Third, unlike prior studies in the literature, we propose a smooth transition regime-switching model where regime transitions are modeled in a smoothly time-varying framework as a function of a transition variable that governs the switching mechanism. The smooth transition regime-switching approach is flexible and switching is not abrupt or sharp as in the Markov switching models as will be explained later in the paper. Regime-switching is governed by an unobservable Markov chain process and therefore, one can never be sure whether a particular regime has occurred at a particular time; but only assign probabilities to its occurrence. From a practical perspective, the smooth transition regression (STR) model provides a more realistic approach to herding tests as heterogeneous agents in the market with a diverse set of beliefs are unlikely to respond simultaneously to news or economic signals, thus leading to non-synchronized responses. Therefore, the herding tests based on the STR model for these

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[1] Philippas et al. (2013), Lee et al. (2013), Yao et al. (2014), Zheng and Zuo (2013) and Demirer, Kutan, and Zhang (2014), among others.

[2] The literature also examines the effect on volatility of investors that imitate other investors' trades (Froot, Scharfstein, & Stein, 1992; Choe, Kho, & Stulz, 1999; Avramov, Chordia, & Goyal, 2006).