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Does speculation in the oil market drive investor herding in emerging stock markets?

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ABSTRACT

This paper examines whether the time variation in the level of investor herding in the stock markets of major oil exporting nations relates to speculation and volatility in the global oil market. We find that speculative activities in the oil market, rather than oil price movements, are positively correlated with anti-herding in the stock markets of major exporters. We argue that traders take the speculative signals from the oil market as a sign of positive expectations and try to generate superior profits by going against the crowd in their local market. While this pattern largely holds during calm (low volatility) market periods, we also find that significant herd behavior takes place during high volatility (or crisis) periods. The findings suggest that policy makers who are concerned about stability in their stock markets should monitor measures of speculative activities in the energy market in order to model and monitor volatility and/or risk transmissions into their markets.

1. Introduction

Herd behavior in financial markets has been examined in numerous studies over the past several decades while the literature has witnessed a surge in herding studies particularly following the 2007/08 global financial crisis that shook financial markets to the core. As the well-established theories of financial returns are based on the fundamental assumption of investor rationality, herd behavior is often associated with irrational or anomalous investor behavior that may destabilize market prices and create excess volatility (e.g. Bikhchandani and Sharma, 2001; Blasco et al., 2012). Despite the multitude of studies that provide theoretical explanations as to why investors would act in herds, the empirical literature, however, has largely focused on testing the presence of herd behavior in different contexts without putting much attention to the factors that potentially drive such behavior among investors. Much of the reason for this is that the traditional herding tests have utilized either low frequency data or static models in their analyses that limited the insight to the dynamic nature of how herding in the market evolves over time. This is clearly an issue of importance for policy makers who are concerned about stability in their stock markets as investor herding can lead to potential bubbles and subsequent crashes in asset prices.

The role of underlying factors that potentially affect investor behavior is particularly important in the case of emerging markets as investors' trades can be highly sensitive to external (global) market shocks due to limited diversification opportunities available domestically. The main goal of this study is to examine, using a dynamic, time-varying parameter model, whether volatility and speculation in the oil market contributes to herding among local stock investors in major exporting nations. By doing so, this study contributes to both the literature on investor herding and the oil-stock market nexus from both a behavioral and econometric perspective.

The empirical analysis focuses on the stock markets of the oil-rich Gulf Cooperation Council (GCC) countries as these markets provide fertile ground for a study of how external factors, in this case oil market dynamics, relate to investor behavior in stock markets. The region possesses about 48% of the world's proved oil reserves and controls one third of the world oil production, with Saudi Arabia ranking first in the global oil exporter ranking, while UAE and Kuwait are ranked third and sixth, respectively.[1] These economies are heavily dependent

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[1] BP Statistical Review of World Energy (June 2015) and the CIA World Factbook (2014).

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on income from energy exports with energy export revenues as a percentage of total exports as high as 90% in the case of Saudi Arabia. On the other hand, the stock markets of these countries are classified as emerging (or frontier) markets due to a number of market characteristics including market size, depth and/or investment restrictions into these markets, among others.[2] It can thus be argued that the heavy dependence of these economies on energy exports coupled with sector concentration due to limited supply of stocks and the lack of alternative domestic financial assets, expose stock portfolios to significant oil price risks that, unlike in the case of advanced markets, can be difficult to diversify away (Mansur and Delgado, 2008; Balcilar et al., 2013; Demirer et al., 2015). This unhedged risk exposure, in turn, can make investors' trading behavior particularly sensitive to oil market dynamics and contribute to herd behavior as investors overreact to common information signals or recent news (Shleifer and Summers, 1990).

Furthermore, unlike the stock markets in other emerging nations such as Poland or Chile, Gulf exchanges are largely dominated by retail traders who are less informed, trade for non-informational reasons (Hirose et al., 2009) and possibly exhibit greater herding tendencies. These unique features, thus, make GCC stock markets particularly interesting for a study of how herd behavior may be driven by external factors, in this case the oil market, and allow for a novel take on the oil-stock market nexus from a behavioral perspective.

From an econometric perspective, the dynamic, Markov switching time varying parameter (MS-TVP) herding model proposed in this study offers several improvements in that it not only accommodates different market regimes when herding may or may not be present, but it also estimates the time-variation in herding parameters, allowing us to directly relate the level of herding in the market to the time variation in oil market dynamics. Finally, we perform comparative analyses using a rich cross-section of firm characteristics that include industry and size classification as well as compliance to religious investment rules to see if firm characteristics play any role on investors' tendencies to display herd behavior. By doing so, this study contributes to our understanding of the dynamics of herd behavior and the transmission of oil price shocks to equity markets in a number of different ways.

Looking ahead, our findings show that the level of herding indeed exhibits a dynamic pattern in which the market switches between herding and anti-herding during calm and volatile market periods. The prevalence of anti-herding during the low market volatility periods underscores the homogeneous nature of traders in stock markets dominated by retail investors who may seek profits by trading away from the market consensus. On the other hand, while the time variation in the level of herding is not found to be correlated with oil return or volatility in the oil-rich GCC stock markets, we observe significant correlations between the level of herding and the speculative ratio in the oil market, suggesting that the oil market's expectations on future oil price movements affect the behavior of traders in local markets of exporting nations. Interestingly, however, we generally observe a positive relation between the degree of speculation and anti-herding regardless of the firm characteristics. We argue that traders in these markets take the speculative signals from the oil market as a sign of positive expectations in oil prices and take advantage of these external signals by trading away from the market consensus in the hope that this will allow them to generate superior profits. The findings suggest that policy makers who are concerned about stability in their stock markets should monitor measures of speculative activities in the energy market in order to model and monitor risk transmissions into their markets.

An outline of the remainder of the paper is as follows. Section 2 briefly summarizes the vast literature on investor herds and the oil-stock market nexus, with a focus on emerging markets. Section 3 provides the description of the testing methodology and the data. Section 4 presents the empirical findings and Section 5 concludes the paper.

2. Literature review

2.1. Herding tests

Herd behavior in financial markets has been a popular topic of interest in both the behavioral finance and asset pricing literature. Numerous studies have tested the presence of herding in different markets and using different methodologies. Bikhchandani and Sharma (2001) define herd behavior as an obvious intent to mimic the actions of other investors and base investment decisions on the actions of more informed traders or the market consensus. Some of the theoretical explanations as to why investors would act in herds include investors' tendency to feel a sense of security in following the crowd (Devenow and Welch, 1996); information acquisition externalities in which investors use resources to acquire new information only if others do (Froot et al., 1992); informational cascades (Banerjee, 1992); reputation (or compensation) related costs of acting differently than others (Maug and Naik, 1996); and the self-reinforcing nature of confidence in the majority opinion (Teraji, 2003).

The traditional studies that examine investor herding include Lakonishok et al. (1992) and Sias (2004) who focus on asset holdings and use the changes in asset positions across investors in herding tests. The holding or transaction based herding measures have been mainly applied to institutional investors in a number of studies including Nofsinger and Sias (1999), Sias (2004), Choi and Sias (2009), Lin and Swanson (2008), and Celiker et al. (2015).[3] On the other hand, a large number of studies have utilized alternative herding tests that are based on return data instead. The return-based herding tests, based on the models in Christie and Huang (1995), Chang et al. (2000) and Hwang and Salmon (2004), generally examine the cross-sectional behavior of returns across groups of stocks with similar characteristics and base inferences on herding on the pattern of asset returns during alternative market states. These tests have been applied to different contexts in a number of studies including Gleason et al. (2004), Demirer and Kutan (2006), Tan et al. (2008), Chiang and Zheng (2010) and more recently, Balcilar and Demirer (2015). Demirer et al. (2010) provides a comparison and discussion of the return-based herding tests. Despite the large number of studies in different contexts, however, the literature has largely focused on detecting herding without delving into the underlying drivers of such behavior.

On the other hand, the literature that specifically focuses on herding in the emerging and frontier stock markets in the GCC is still developing. In a pioneering study in this strand of the literature, Balcilar et al. (2013) provide the initial evidence of herd behavior in the GCC stock markets. Extending the benchmark herding model of Chang et al. (2000) to a regime-switching specification, they show that herding presents itself mainly during the crash market state with the exception of Qatar where herding is observed during the high volatility state. Building on this evidence, Balcilar et al. (2014) later establish a relationship between market volatility, global factors and herd behavior in these stock markets. While their findings suggest that market volatility is the primary factor governing switches between herding and anti-herding states, they also show that several global variables including oil price as well as U.S. market based variables also significantly affect the transition probabilities into market states wherein herding is present. More recently, focusing on the Saudi stock market, Rahman et al. (2015) document evidence of pervasive herding that gets stronger during bullish markets and periods of active trading. However, these studies ignore the time variation in herding and thus provides an

[2] According to MSCI, only Qatar and UAE are classified as emerging, while Kuwait and Saudi Arabia are classified as frontier and standalone markets, respectively. (https://www.msci.com/market-classification).

[3] Choi and Sias (2009) provide a review of the herding literature.