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Microstructures, financial reforms and informational efficiency in an emerging market

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ABSTRACT

This paper investigates the effects of microstructures and financial reforms on time-varying informational efficiency in an emerging equity market setting. Our data comprises of firm level data from the Trinidad and Tobago Stock Exchange, over the period 1990–2013. Using a dynamic panel regression framework while controlling for firm size, we find that microstructures, specifically liquidity, volatility, automation and the number of shareholders have an important role in influencing the time-varying efficiency of this emerging market. The financial reforms, namely liberalisation and regulation are not found to have a notable influence. We also consider heterogeneity at the firm level, finding that the microstructures of the banking firms listed in this market have a greater impact on market efficiency, in relation to the other listed firms.

1. Introduction

It is widely acknowledged that the degree of informational efficiency in equity markets is time-varying. That is, the ability of equity prices to absorb information evolves over time such that there are sub-periods within the overall sample in which informational efficiency improves. This improvement implies that equity prices are a better reflection of the value of the firm in these sub-periods, signalling the good investments from the poor ones with better accuracy. This raises an important question: what causes informational efficiency to vary over time? Addressing this research question enables us to gain important insights into what influences the extent to which stock prices are true indicators of resource allocation. It also enhances our understanding of the process by which emerging markets become informationally efficient over time.

This paper analyses the effects of changes in several key, yet diverse microstructure and reform variables jointly on time-varying informational efficiency in an emerging market context. Our analysis is conducted using data from the Trinidad

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and Tobago Stock Exchange (TTSE). This market is an ideal setting for such an analysis. It is in its embryonic stages of development and has recently undergone many microstructure and reform changes, enabling us to better understand how changes in these variables cause informational efficiency to evolve over time. To this end, we are the first to offer evidence on the effects of microstructures, namely liquidity, volatility and the number of shareholders on time-varying efficiency in an emerging market context. We also assess the implications of reform measures on informational efficiency, specifically financial liberalisation and stock market regulation. We conduct this analysis using individual stock specific data for the microstructure variables. We are not aware of other studies on emerging market efficiency that use stock level data. Applying such a data set enables us to precisely identify the effects of market microstructures on informational efficiency, which may otherwise be hidden by aggregate market level data. This also enables us to capture the importance of heterogeneity at the firm level in explaining efficiency.

We apply panel regression methods to assess the implications of microstructures and reforms on informational efficiency. From the analysis, we find that improvements in each microstructure variable serve to enhance informational efficiency over time. This implies that these variables improve the extent to which information on fundamentals is brought to the market and incorporated in prices. We do not, however, find evidence that reforms cause informational efficiency to evolve over time. Robustness checks are also performed, which confirm our findings. We further extend our analysis to control for unobserved heterogeneity, and find that the effects of microstructures on informational efficiency are largely attributed to the banking firms listed on the market. This is because the stocks of these firms are most actively traded and there is a large volume of information available for these firms.

Our study is related to a growing number of empirical studies that have explored the effects of microstructures on informational efficiency. Indeed, microstructures are integral to the price discovery process, as they are directly concerned with the institutional features and trading mechanisms of the market (O'Hara, 1995; Bekaert and Harvey, 2003). Studies by Pagano and Schwartz (2003) and Chang et al. (2008) show that the introduction of a call auction trading mechanism to open and close trading improves the informational efficiency of the Euronext Paris and Singapore stock exchanges, respectively. This is because the call auction consolidates order flows, facilitating a faster matching and execution of buy and sell orders. Information is, therefore, impounded into prices faster. Naidu and Rozeff (1994) and Hendershott and Moulton (2011) find that informational efficiency improves following the automation of trading on the Singapore stock exchange and NYSE, respectively. They also attribute these findings to faster trading with low execution costs, brought about by automation, which causes prices to reflect a broader set of information at a faster rate. More recently, studies have begun to consider the effects of changes in liquidity. Using individual stock level data from U.S. markets, Chordia et al. (2008) and Chung and Hrazdil (2010a,b) report that increased liquidity is associated with higher informational efficiency. Specifically, as transaction costs (bid–ask spreads) decline and trading frequencies increase, the extent to which prices readily incorporate information improves substantially over their sample period.

Microstructures alone, however, cannot cause prices to reflect their fair value (Bekaert and Harvey, 2002). Another strand of studies shows that financial reforms also drive time-varying informational efficiency. Some of these studies present evidence that informational efficiency improves after the implementation of financial liberalisation policies (Kim and Singal, 2000a,b; Cajueiro et al., 2009; Hung, 2009). These results arise as liberalisation broadens the participation of foreign investors, thereby increasing the extent to which information is impounded into prices. Other studies establish that reforms, which improve the regulatory environment, also enhance informational efficiency. For instance, Fernandes and Ferreira (2008) and Lagoarde-Segot (2009) show that regulations against insider trading improves efficiency, as this inhibits insiders from manipulating stock prices to extract abnormal profits.

There are, however, key limitations involved with these studies. Firstly, these studies consider the impact of only one type of microstructure or reform (exogenous variable) on informational efficiency. They fail to account for other microstructures and reforms that may be driving the efficiency of the exchange. This is problematic, as the results may be ascribed to a different type of microstructure and/or reform, which is correlated with the exogenous variable. Such results may not provide a complete or accurate picture of the impact of the microstructure or reform in question. Secondly, very few analyses on the effects of microstructures on informational efficiency pertain to emerging markets. This is due to the unavailability of detailed stock specific data for emerging markets required to conduct such analyses, including individual stock returns and transactions data. Emerging markets, however, constitute ideal laboratories to test predictions regarding microstructures and efficiency, as the microstructures on these markets are likely to have undergone formidable changes over time compared to the developed markets (Bekaert and Harvey, 2002, 2003).

Our study overcomes these limitations and makes several novel contributions to the literature on the causes of time-varying efficiency. Firstly, we use individual stock level microstructure data from an emerging market. This enables us to better capture the true effect of microstructures on emerging market informational efficiency, which would otherwise be hidden if aggregate market level data were used. It also enables us to control for unobserved heterogeneity at the firm level. Secondly, we consider the effects of changes in multiple microstructure and reform variables jointly on informational efficiency. Any omitted variable bias is therefore minimised, providing results that accurately capture the effect of each microstructure and reform on informational efficiency.

The rest of this paper is organised as follows. The next section discusses the econometric model, our approach to measuring each variable and the estimation procedure. Section 3 provides descriptive statistics. In Section 4 we present and explain our results. Finally Section 5 concludes.