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Lead-lag relationships in an embryonic stock market: Exploring the role of institutional ownership and liquidity

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ABSTRACT

This paper investigates the influence of institutional ownership and liquidity on stock return relationships for an embryonic and relatively illiquid stock market. Using daily, individual stock data for Trinidad and Tobago from 2001 to 2015 and a VAR modelling approach, we find for firms of all sizes and levels of analyst coverage that the returns of more institutionally favoured stocks lead those with less institutional ownership. Distinctively, greater institutional coverage is shown not to be associated with greater liquidity, though liquidity levels do condition the influence of institutional ownership. This indicates that institutional owners have information advantages relative to other stock owners.

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1. Introduction

Over the past 30 years, we have learnt a lot about emerging markets finance. The bulk of the research focuses on issues related to the impact of market integration and financial liberalization on asset prices and their relationship to those in developed economies. Out of this line of research we now understand, for example, that emerging markets are relatively inefficient and are characterized by infrequent trading. In these circumstances asset returns are not normally distributed, have high serial correlation and are slow to adjust to current information.¹ Slow price adjustment has also been documented for prices of both individual stocks and portfolios traded in developed economies. In particular, numerous studies provide evidence of lead-lag effects in cross-autocorrelations of stock returns, strongly suggesting that some stocks react to information faster than other stocks. One explanation offered for these lead-lag effects is variation in institutional ownership between stocks.² Data analyses of stock returns from the New York Stock Exchange (NYSE) provide strong support for this hypothesis (Badrinath et al., 1995; Sias and Starks, 1997; Chuang and Lee, 2011).

Sias and Starks (1997) review various theoretical attempts to explain how the presence of institutional investors affects the behaviour of stock prices. Institutional investors trade in the information they collect and the prices of the corresponding stocks will reflect the information set observed by these investors. While some of this information is stock specific, a

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¹ For reviews of this extensive literature, see Bekaert and Harvey (2002, 2003).

² Alternative explanations include non-synchronous trading (Lo and MacKinlay, 1990), variations in analyst coverage (Brennan et al. 1993) and variations in liquidity (Chordia and Swaminathan, 2000).

portion will be general in nature, and therefore, relevant to the pricing of stocks that are held by non-institutional investors (institutionally, unfavoured stocks). By observing the prices of the institutionally favoured stocks, non-institutional investors will find information relevant to the pricing of the rest of the stocks. By trading on this information, they will transmit the informational content from the lagged prices of the institutionally favoured to the current prices of the unfavoured stocks.

This lead-lag, cross-autocorrelation relationship has been empirically investigated in the context of the larger, emerging markets. For instance, [Chan and Hameed \(2006\)](#) use data from Standard & Poor's (formerly the International Finance Corporation) Emerging Markets Database (EMDB), which covers more than 2000 stocks from 45 emerging markets. The authors find that, after controlling for the influence of firm size on lead-lag relations, the returns of a high analyst-following portfolio lead the returns of a low analyst-following portfolio more than the converse. Similar results were obtained by [Boyer and Kumagai, \(2006\)](#) using the same data set to explore contagion and by other studies that focus on single-country stock exchanges ([Gebka \(2008\)](#) for Poland; [Xu et al. \(2013\)](#) for China). Further, [Bae et al., \(2012\)](#) also using the EMDB database assess whether the degree of accessibility of foreign investors to emerging stock markets has a significant influence on the diffusion of global market information across stocks in emerging markets. They show that greater accessibility reduces price delay to global market information. They also find that the returns of highly investible or accessible stocks lead those of non-investible stocks, with highly investible stocks incorporating global information more quickly. The same conclusion is reached by studies of single-country stock exchanges ([Li et al., 2010](#) for China; [Park and Chung \(2007\)](#) for S. Korea) and stock index futures ([Bohl et al. \(2011\)](#) for Poland). In contrast, [Chan et al. \(2007\)](#) also studying the Chinese market find that lead-lag effects are likely to capture private local information for which local investors have an advantage over foreign investors.

Financial liberalization and market integration encourage the inflow of institutional investors in emerging markets, and therefore this provides a natural testing ground for the view that differences in the level of institutional investment across stocks account for lead-lag relationships; specifically, for the hypothesis that the prices of stocks with a high level of institutional investment lead those of stocks with low institutional investment. One serious obstacle for this type of work has been the lack of data from embryonic markets on either/both individual stock returns or/and information about institutional ownership. This study fills this gap in the literature by analysing data from the Trinidad and Tobago Stock Exchange (TTSE). This emerging market is in its embryonic stages of development and has experienced a high level of investment activity over this past decade. In addition, its regulatory, microstructure and information environments are substantially less developed than those of the stock markets in the industrial and larger, emerging economies. For instance, there is a high level of transactions costs and thin trading in this market. ([Appendix A Table A1](#) provides some data on trading activity in TTSE for the period covered by this study, and section 2 provides some background information on the market and regulatory conditions of TTSE.) Much existing work on developed stock markets or advanced emerging markets have explored lead-lag relations in the context of relatively liquid market conditions. Here we are able to explore lead-lag relationships between stocks under relatively illiquid market conditions; conditions that are likely to apply in other smaller and early stage stock markets. Our main finding is that greater liquidity both increases (*ceteris paribus*) the lead effect for institutionally favoured stocks and the speed of adjustment or catch-up of lagging, institutionally unfavoured stocks.

One feature of this study is that it uses both individual stock/firm level data and constructed portfolio information from an emerging market in its embryonic stages of development. The existing literature tends to use only portfolio level data for relatively large emerging markets when exploring lead-lag effects.³ Any findings of lead-lag effects in the context of an embryonic market such as TTSE where there is little trading in portfolios could be attributable to a lead-lag relation between some (or even few) of the stocks of the portfolios. This gives rise to the possibility that the results may not be reflective of the true cross-autocorrelation between all the stocks in the portfolios. Here we apply our empirical analysis to portfolio information for comparison with the existing literature, but also to returns data at the individual stock level. This provides a robustness test for any identified lead-lag effects between the returns of (individual and portfolios of) stocks with a high institutional investment and those with low institutional investment.

For our empirical tests, and in line with the dominant methodology employed in the literature, we apply a VAR framework to assess lead-lag cross-autocorrelation between 'high' and 'low' institutionally owned stocks in the TTSE. This ensures that any observed lead-lag cross-autocorrelation is not a spurious manifestation of the autocorrelation of the low institutional ownership equity returns and the contemporaneous correlations between the low institutional ownership and the high institutional ownership equity returns. Given that other studies (cited above) of the NYSE and some emerging markets find that firm size is correlated with the level of institutional investment, we check that the lead-lag relation is robust across the stocks of firms of different sizes. We also check that the relation is robust across stocks with differing levels of analyst coverage ([Brennan et al., 1993](#)). This market characteristic has also been offered as a possible cause of the cross-autocorrelation relationship.

[Syriopoulos \(2006\)](#), analysing lead-lag effects between stock prices from US, Germany and a group of emerging Central European market, finds robust and persistent short-run US stock market effects to Granger cause German and Central Europe

³ See, for example, [Bohl and Brzeszczyński \(2006\)](#). Using data on foreign ownership rather than institutional ownership, taken from the EMDB database of emerging stock markets, [Bae et al. \(2012\)](#) also analyse the relationship between lead-lag cross-autocorrelations and the speed of adjustment to new information, but again using portfolio data. Also, the markets in this study are mainly secondary emerging markets (e.g. South Africa, Malaysia, Brazil and Portugal), which are much larger than the TTSE in terms of market capitalization and number of listed firms. They also have liquidity far superior to that of the TTSE.

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