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The impact of foreign trades on emerging market liquidity☆

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ABSTRACT

We examine the transmission mechanisms through which foreign trades affect commonality in liquidity in an emerging stock market. Trade-level data from the Indonesian Stock Exchange allow us to examine the impact of aggressive foreign trades on commonality in liquidity. Our results show that these trades contribute significantly to the price discovery process as well as to increasing commonality in liquidity. We find that the price discovery impact of aggressive foreign trading provides the mechanism through which foreign investor trading affects emerging market liquidity dynamics. Overall, our study shows that foreign investor trading is a double-edged sword.

1. Introduction

Although emerging stock markets offer return potential and diversification benefits to foreign investors, these markets are known to be less liquid than the stock markets in developed economies. Both the level of stock market liquidity and its changes over time are important considerations for foreign investors investing in emerging markets. The market frictions framework of Stoll (2000) suggests that foreign trades can affect domestic market liquidity by changing the real or information frictions in the domestic market. Foreign trades can lower real frictions and increase market liquidity by promoting higher trading activity in the domestic market, which would lower the fixed liquidity-cost per trade (Ding et al., 2013). On the other hand, informed trades from foreign investors can reduce domestic market liquidity when such trades increase information asymmetry. To date, there is empirical evidence suggesting that foreign trades increase domestic market liquidity by lowering the costs of information asymmetry (Ding et al., 2013). In contrast, Rhee and Wang (2009) find that foreign investor participation reduces domestic market liquidity and argue that information asymmetry could be one of the underlying causes of this reduction.

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Another line of research examines commonality in liquidity (e.g., Chordia et al., 2000; Huberman and Halka, 2001), which refers to how closely individual stock liquidity follows general movements in market liquidity. This literature suggests that foreign investors prefer stocks with lower systematic liquidity because such stocks would remain relatively liquid when market liquidity dries up (Amihud et al., 2015; Lee, 2011). Karolyi et al. (2012) find that foreign investors play a significant role in exacerbating commonality in liquidity. The positive relationship between foreign trades (who are mostly institutional investors) and commonality in liquidity is consistent with related findings in the U.S. markets (Chordia et al., 2000; Kamara et al., 2008; Koch et al., 2011).

To complement previous research on the impact of foreign trades on commonality in liquidity, this paper examines the mechanisms through which foreign trades affect commonality in liquidity; specifically, we examine whether aggressive trading by foreign investors has a significant impact on commonality in liquidity of an emerging market. Whilst previous research shows that foreign trades are generally more aggressive than domestic trades (Agarwal et al., 2009; Dvorak, 2005), we posit that these aggressive trades from foreign investors increase commonality in liquidity because they are likely to contain price-sensitive information – and thereby exacerbate information asymmetry in the domestic market. As information asymmetry increases, liquidity suppliers simultaneously pull back from the market and commonality in liquidity increases as a result. We develop two hypotheses to address our main research question (i.e., the impact of aggressive foreign trading on domestic stock market liquidity).

Our first hypothesis is that aggressive foreign trades are informative and can therefore drive the price discovery process in the domestic market. Previous academic studies examine the prevalence of asymmetric information between domestic and foreign investors (Agarwal et al., 2009; Choe et al., 2005; Dvorak, 2005; Froot and Ramadorai, 2001; Froot and Ramadorai, 2008; Grinblatt and Keloharju, 2000). However, the identity of the informed party is not clear. Several studies find that foreign investors are more informed due to their experience and access to a larger pool of resources (Froot and Ramadorai, 2001; Grinblatt and Keloharju, 2000), while other studies provide evidence that domestic investors are more informed since they have better access to relevant domestic-market information (Choe et al., 2005; Dvorak, 2005). Given the mixed nature of this information asymmetry evidence, it is imperative to examine further the price impact (if any) of aggressive foreign trades. Foreign investors' submission of aggressive orders could be due to an information advantage over domestic traders,[1] either in terms of their possession of private information or in their ability to better process and utilize public information.

Our second hypothesis is that aggressive foreign trades will increase commonality in liquidity (through the price discovery mechanism posited in our first hypothesis). The inverse relation between foreign trades and market liquidity is potentially caused by the impact of such trades on information asymmetry (Rhee and Wang, 2009). Aggressive and informative trades from foreign investors are expected to exacerbate information asymmetry in the domestic market, leading local liquidity suppliers to withdraw their supply of liquidity, and thus causing stock liquidity to decline in a systematic manner (i.e., commonality). Moreover, as our sample period overlaps with a liquidity shock that originates in the developed U.S. capital market, we also examine whether the impact of foreign trade aggressiveness on the price discovery process, as well as on commonality in liquidity, is stronger during this turbulent period.

To test our two main hypotheses we obtain transaction-level data from the Indonesian Stock Exchange (IDX) from January 2, 2008 to December 30, 2010. The IDX transactions data allow us to observe order execution as well as measure trade aggressiveness of domestic and foreign investors in the IDX, thereby providing the means to directly measure the impact of aggressive foreign trades on the price discovery process as well as liquidity commonality. This feature of the data explains the widespread use of the Indonesian stock market in prior research (Dvorak, 2005; Wang, 2007; Agarwal et al., 2009; Rhee and Wang, 2009; Agarwal et al., 2011). In addition, there are no restrictions to foreign ownership on the IDX. This point is important since many emerging markets impose foreign ownership restrictions that make it difficult to measure what the full impact of foreign trading would be in a less restrictive setting. Moreover, Indonesia is home to the 4th largest population in the world, one of the world's largest emerging markets, and a member of the G20.

We use information leadership shares (ILS), proposed by Putniņš (2013), as our proxy of trade informativeness for domestic and foreign investors. Before we estimate the ILS for each group of investors, we construct domestic and foreign price series by taking the price of the initiated trades from these groups over various time intervals, ranging from 5 s to 5 min. Since our study focuses on trading aggressiveness, we classify investors who submit market orders for immediate execution (i.e., aggressive liquidity demanders) as trade initiators. The other side of these initiated trades will be passively absorbed by investors who had submitted limit orders (i.e., liquidity suppliers) and thereby filled out the IDX limit order book. We estimate ILS for domestic and foreign investors at daily intervals and average these daily ILS measures by firm and month. Our commonality in liquidity measures are calculated for relative spreads and depths in value terms. We calculate relative spreads as the prevailing bid-ask spread for each trade, standardized by the mid-point price and depths in value by taking the average share values available at the best bid and ask prices. We estimate these liquidity measures for every trade and then take daily averages of these measures to eliminate intraday seasonality.

We use the coefficient of determination (R^2) obtained from regressing individual firm liquidity against overall market liquidity (Karolyi et al., 2012; Lang and Maffett, 2011; Wang, 2013) as our commonality in liquidity measure. We include market returns (Lang and Maffett, 2011) and market volatility (Wang, 2013) in our liquidity commonality regressions. We estimate these liquidity commonality measures for every firm-month and require each regression to have a minimum fifteen trading days. To take into account the global financial crisis period, we divide our data into two distinct time periods – the crisis period (January 2008 to January 2009) when foreign ownership declines precipitously, and the post-crisis period (February 2009 to December 2010) when foreign ownership picks up again. Examining the information content of aggressive foreign trades, we find that it is the aggressive sells from foreign investors that are the most informative and contribute to the price discovery process. We also find that

[1] Agarwal et al. (2009) find that foreign investors have better trade performance when they trade more aggressively than domestic investors. Similarly, domestic investors perform better when foreign investors trade less aggressively.