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Investor sentiment and emerging stock market liquidity

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A B S T R A C T

This study examines the impact of local and foreign investor sentiment on emerging stock market liquidity. We find a positive (negative) effect of investor sentiment on liquidity (illiquidity). Results also reveal that foreign investor sentiment significantly influences emerging stock market liquidity.

1. Introduction

This paper examines the impact of investor sentiment (IS) on emerging stock markets' (ESMs) liquidity. Stock-market liquidity affects market efficiency, transaction cost, expected return, and overall financial stability (Chordia et al., 2001; 2008). Therefore, understanding factors that influence stock-market liquidity is an important concern. Existing literature documents that macro-economic variables, stock-exchange trading rules, investor-protection rules, information environment, market micro-structure issues, and firm-specific characteristics are possible sources of variation in liquidity (Brockman et al., 2009; Cumming et al., 2011; Karolyi et al., 2012; Moshirian et al., 2017). However, little attention has been paid to examining the impact of IS on stock-market liquidity. In recent years, sentiment and liquidity relationship has drawn considerable attention due to potential impairment caused by a lack of liquidity during the 2008–2009 financial crisis. Existing literature suggests that investors' trading behavior based on noise (Baker and Stein, 2004; DeLong et al., 1990; Huberman and Halka, 2001), overconfidence (Statman et al., 2006), and disposition effect (Shefrin and Statman, 1985) can influence sentiment in the market, which subsequently can affect liquidity. Notably, in a recent study, Liu (2015) asserts that positive (negative) IS increases (decreases) market liquidity. Such empirical evidence in the context of ESMs is negligible. Given that liquidity premium is an important feature of ESMs' return behavior (Bekaert et al., 2007), and investors' behavior in such markets is arguably different from developed markets (Kim and Nofsinger, 2008), a study on the relationship between IS and liquidity using ESM data can shed more light on this issue. Moreover, since the impact of noise trading on financial stability is negative (Shleifer and Summers, 1990), and high noise trading can influence liquidity (Liu, 2015), the sentiment-

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liquidity relationship is a pertinent research question from a policy perspective. A related strand of behavioral finance literature also suggests that developed-market IS can have a contagious effect on stock-return behavior in other markets (Baker et al., 2012; Hudsona and Green, 2015; Karolyi et al., 2012; Verma and Soydemir, 2006). Due to the growing importance of ESMs in international portfolio diversification, the impact of foreign IS on aggregate ESM liquidity can be a major issue from practitioners' perspectives. However, no existing study documents the impact of domestic and foreign IS on ESM liquidity.

This study seeks to provide new insights on this noticeable gap in the literature majorly in two ways. First, considering a panel dataset of 12 ESMs, we provide comprehensive evidence of a positive (negative) relationship between domestic sentiment and stock-market liquidity (illiquidity). Second, using time-series data from two aggregate ESM indices, we provide evidence that foreign sentiment (U.S. and Europe) is an important determinant of ESM liquidity.

The rest of the paper proceeds as follows. Section 2 outlines data and methodology. Section 3 examines the results. Section 4 provides robustness tests. Section 5 concludes the paper.

2. Data and methodology

The sample period spans from April-2002 till March-2015 (156 monthly observations). Sample-period selection is constrained by consistent data availability for sentiment proxies and liquidity-variable construction. The data sources are Bloomberg and the Organization for Economic Cooperation and Development (OECD) databases. This section is divided into two parts. The first part presents data, variables, and the empirical approach used in the panel estimation of 12 ESMs. The second part provides detail discussion on data and variables used for time-series analysis.

2.1. Data, variables and empirical approach in panel estimation

The 12 ESMs and their benchmark equity indices used in this study are Brazil (Bovespa Index), China (Shanghai Composite index), India (NSE Nifty 50 index), Indonesia (Jakarta Stock Exchange Composite Index), Mexico (S&P/BMV Mexico Index), Philippines (Philippines Stock Exchange PSEi Index), Poland (Warsaw Stock Exchange Index), South Africa (FTSE South Africa Index), South Korea (Korea Composite Stock Price Index), Russia (RTS Standard Index), Thailand (Stock Exchange of Thailand Index), and Turkey (Borsa Istanbul 100 Index). These 12 ESMs were chosen because they are consistently recognized as a suitable equity asset class in various international indices, such as the MSCI, FTSE, Standard & Poor's, and Dow Jones emerging market indices. For instance, excluding South Korea (only present in the MSCI emerging-market index), all other 11 ESMs account for 65.26 percent, 76.33 percent, 75.13 percent, and 87.77 percent country equity exposure for the MSCI, FTSE, Standard & Poor's, and Dow Jones emerging-market indices respectively (Philips and Kinniry, 2012). Moreover, a recently published Vanguard emerging-market stock index fund fact sheet shows that the afore mentioned 12 ESMs account for 76.40 percent asset allocation out of 98.70 percent emerging-market equity exposure (Vanguard Group, 2017).

Related literature considers liquidity as an elusive concept, and it is not observed directly but rather has many aspects that cannot be captured in a single measure (Amihud, 2002 p. 33). Liquidity, by its very nature, is difficult to measure because it encompasses a number of transactional properties of the underlying asset (Lesmond, 2005). Therefore, we use three liquidity measures to control for trading frequency, price-impact characteristics, and transaction-cost aspects. First, following Datar et al., (1998) and Fernandez-Amador et al. (2013), we use traded value (TV), measured as the product of the number of shares traded with respective stock prices. Second, we use Amihud's (2002) illiquidity (ILLIQ) proxy. Third, based on Corwin and Schultz's (2012) measure of illiquidity, we incorporate high-low spread ratio (HLS) as our third liquidity proxy. Following Corwin and Schultz (2012), we adjust the overnight price changes in the estimation of HLS ratio as follows. If the low (high) of day $t + 1$ (today) was above (below) the close price of day t (yesterday), then the high and low of $t + 1$ day are reduced (increased) by the amount of overnight changes. We also set all negative daily spread to zero before making monthly averages as it gives higher degree of accuracy of the estimates instead of including and deleting negative spread (Corwin and Schultz, 2012). TV, ILLIQ, and HLS represent trading frequency, price impact, and transaction-cost aspects of liquidity, respectively. We compute the three liquidity variables using daily data from the aforementioned country-specific equity indices. Consistent with Schmeling (2009), and Lemmon and Portniaguina (2006), for our panel estimation, we use orthogonalized Consumer Confidence Index (CCI) data as a country-specific sentiment proxy ($SENT_{CCI}$). Following Fernandez-Amador et al. (2013) and Chordia et al. (2001), our country-specific macroeconomic control variables are inflation rate (INF), industrial production growth (IIP), broad money growth rate (BM), and term spread (TS). Panel (A) of Table 1 provides descriptive statistics of sentiment and liquidity variables. Panel (B) of Table 1 reports descriptive statistics of macroeconomic control variables.

Following Schmeling (2009), we employ panel Granger-Causality test and panel fixed-effect model to investigate the impact of sentiment ($SENT_{CCI}$) on ESMs' liquidity. The use of panel regression helps to increase the power of our tests, and to investigate whether there is a significant sentiment-liquidity relationship exists across countries. The use of panel fixed-effect estimation in Eqs. (1)–(3) allows the intercept to vary over the individual country (j), while the slope coefficients remain constant.

$$TV_{jt} = c_j + \alpha_1 TV_{jt-1} + \alpha_2 SENT_{CCIjt-1} + \alpha_3 INF_{jt-1} + \alpha_4 IIP_{jt-1} + \alpha_5 BM_{jt-1} + \alpha_6 TS_{jt-1} + e_{jt} \quad (1)$$

$$ILLIQ_{jt} = c_j + \alpha_1 ILLIQ_{jt-1} + \alpha_2 SENT_{CCIjt-1} + \alpha_3 INF_{jt-1} + \alpha_4 IIP_{jt-1} + \alpha_5 BM_{jt-1} + \alpha_6 TS_{jt-1} + e_{jt} \quad (2)$$

$$HLS_{jt} = c_j + \alpha_1 HLS_{jt-1} + \alpha_2 SENT_{CCIjt-1} + \alpha_3 INF_{jt-1} + \alpha_4 IIP_{jt-1} + \alpha_5 BM_{jt-1} + \alpha_6 TS_{jt-1} + e_{jt} \quad (3)$$

Consistent with Schmeling (2009), we also estimate Eqs. (1)–(3) separately for each of the 12 ESMs in our sample to test the