International Review of Financial Analysis

Firm level governance and institutional determinants of liquidity: Evidence from Sub Saharan Africa

Bruce Hearn [a,*], Jenifer Piesse [b,c]

[a] University of Sussex, UK
[b] Bournemouth University, UK
[c] University of Stellenbosch, South Africa

A B S T R A C T

This study contrasts well established liquidity measures, namely volume-based turnover ratio, related price-impact Amihud (2002) construct and the multidimensional Liu (2006) indicator alongside the Lesmond, Ogden, and Trzcinka (1999) proportion of zero daily returns metric in explaining bid-ask spread plus commissions costs. We control for six critical firm governance characteristics that impact liquidity alongside the market-based controls that are conventionally solely included in the literature. Using a unique sample of 12 Sub Saharan African (SSA) equity markets, namely Kenya, Mauritius, Zambia, Zimbabwe, Botswana, Malawi, Namibia, Nigeria, Ghana, BRVM (Cote d'Ivoire), and then South Africa's ALT-x and Main boards we find evidence that state and foreign venture capitalist involvement in firms enhances liquidity while involvement of foreign partners, entrepreneurial founders, domestic venture capital and inclusion within an extended business or family network has opposite effect. The evidence supports the use of the proportion of daily zero returns measure in preference to other measures in capturing illiquidity. Furthermore we find that liquidity is closely associated with three of six World Bank Governance measures of institutional quality with these being government effectiveness, regulatory quality and rule of law.

© 2013 Elsevier Inc. All rights reserved.

1. Introduction

The worldwide trend in liberalising and deregulating capital markets over last two decades has led to the recent establishment and proliferation of equity markets in developing regions not typically associated with external markets-based finance such as Sub Saharan Africa (SSA) (Bekaert & Harvey, 1995). However the negligible participation of investors in SSA equity markets, albeit with the prominent exception of South Africa, (Hearn & Piesse, 2009) the extreme variations in macro-institutional quality (Kodongo & Ojah, 2011), and the significant inter and intra-market segmentation (Hearn, 2012a, 2012b; Hearn & Piesse, 2012a, 2012b) all underscore the timely need to study the efficacy of liquidity measures in capturing transactions costs within this region.

The majority of the literature relating to the efficacy of various selected liquidity measures in capturing the dynamics of equity market transactions costs is focussed on the developed US equity markets (see Goyenko, Holden, & Trzcinka, 2009; Fong, Holden, & Trzcinka, 2011 for extended discussion). Far fewer studies focus on the efficacy of an even narrower range of liquidity indicators within the context of emerging markets with the most prominent being Lesmond (2005), Bekaert,

Harvey, and Lundblad (2007) and Ghysels and Cherkaoui (2003). The first two employ samples of 23 and 18 emerging markets respectively, while only 4 African markets (Egypt, Morocco, South Africa and Zimbabwe) are included in former and only Zimbabwe is in the latter. The final Ghysels and Cherkaoui (2003) study is focussed solely on Morocco and in particular questions the applicability of the majority of liquidity estimators, developed in deep, well regulated US equity markets, on smaller emerging and frontier markets characterised by thin trading and significant segmentation. The significant inter and intra-equity market segmentation across SSA region is reflected in the law of one price rarely holding (Hearn & Piesse, 2012a, 2012b), the lack of any discernible informational efficiency (Alagidede & Panagiotidis, 2009), and the inability in forming a comprehensive SSA regional market universe (Hearn, 2012a, 2012b). This alone is perhaps the single most important issue underscoring the omission from consideration of liquidity measures based on variants of capital asset pricing model (such as effective spread of Lesmond et al., 1999, henceforth Lesmond et al. (1999) and price-impact measure of Pastor & Stambaugh, 2003). Furthermore the severity of thin trading with trades in smaller frontier markets being consummated after an order matching process lasting up to weeks and months (Oliveira, 2007) obviates the omission of the majority of price-impact indicators such as more sophisticated variants of Amihud (2002) measure (documented in Goyenko et al., 2009) and the Amivest indicator owing to their being undefined for substantial periods of any sample period. As such we modify and extend the study of Lesmond (2005) on 23 emerging markets that assesses at firm-level the effective

  * Corresponding author at: Department of Business, Management and Economics, University of Sussex, Jubilee Building, Brighton, BN1 9SL, UK. Tel.: +44 1273 67 8377.
    E-mail address: b.a.hearn@sussex.ac.uk (B. Hearn).

spread measures of Lesmond et al. (1999) and Roll (1984) alongside the price-impact indicator of Amihud (2002) and ubiquitous turnover ratio in explaining quoted bid-ask spread. While we retain the quoted bid-ask spread as liquidity benchmark, this is related to liquidity measures more applicable to the extremes of thin trading and activity encountered in smaller emerging and frontier SSA equity markets. These are the recently developed trading speed measure of Liu (2006) that captures the multidimensional nature of liquidity and is thus beneficial in application within extremes of thin trading, the ubiquitous turnover ratio and Amihud (2002) price-impact indicator,[1] in line with the Lesmond (2005) study, alongside the proportion of daily zero returns (over a trading month) developed in Lesmond et al. (1999). This latter measure is particularly beneficial in smaller emerging and frontier markets where the complete lack of participation of traders is more akin to a "freezing" of activity process documented by O'Hara and Easley (2010) in conjunction to the recent 2007/8 global financial crisis. This "freezing" is attributed to high levels of uncertainty associated with a lack of familiarity with African asset classes and market-microstructure alongside macroeconomic and political instability that renders traders unable to effectively rank respective diversification opportunities in terms of utility which in turn leads to incomplete preferences causing their abstaining from trades (Bewley, 2002; O'Hara, 2003). Finally in terms of our sample and the lack of bid-ask spread data reduces the number of SSA markets from twenty to twelve: South Africa's main board and ALT-x markets, Namibia, Botswana, Zimbabwe, Zambia, Malawi, Mauritius, Kenya, Nigeria, Ghana and the Francophone West African regional exchange, the BRVM[2] in Cote d'Ivoire. This forms our first contribution to the literature.

A major limitation of the liquidity literature is the sole focus on assessment of efficacy of various liquidity measures in capturing the dynamics of equity market transactions costs without reference to ownership or alternative governance systems (see for example Bekaert et al., 2007; Fong et al., 2011; Goyenko et al., 2009; Lesmond, 2005). This limitation is also evident in a separate strand of literature relating different types of institutional and block-holder ownership to liquidity and price discovery process. While Jacoby and Zheng (2010) find evidence that ownership dispersion is closely linked to enhanced liquidity and reduction in quoted spreads, similar evidence is found by Rubin (2007) where a higher number of institutional with shareholdings is linked to greater liquidity in contrast to the opposite effect arising from fewer institutions that have more concentrated ownership (see Heflin & Shaw, 2000 for similar findings). However this relates primarily to different types of owner, namely insider or institutional, and the level of competition facilitating incorporation of information into stock prices. In contrast Rhee and Wang (2009) find evidence that foreign investors in Indonesia are more likely to have preferential access to asymmetric information and are thus related to decrease in liquidity. Ng, Wu, Yu, and Zhang (2011) elaborate on this relationship in finding evidence of a differential impact on a stocks informational asymmetry between foreign direct investors (FDI) and their portfolio investor counterparts. The former increases asymmetry while the latter has opposite effect. Finally Agarwal (2011) finds evidence that institutional investor characteristics, such as risk aversion and investment time horizon, influence levels of informational asymmetry and liquidity. However a shortfall in this literature is a lack of more comprehensive consideration of broader ownership entities and powerful alternative governance mechanisms such as affiliation to extended family networks or business groups.

Consideration of the impact on liquidity arising from broader categories of owner-entity and governance is especially important within the context of developing countries where many stock exchanges have been established with the intended goals to promote managerial efficiencies, enable state divestment from former state owned enterprises (SOEs) and facilitate access to external capital by founding-entrepreneurs that are key to economic growth. As such we consider the impact on liquidity spreads from six ownership and governance entities, namely involvement of state, long-term foreign partner, founding-entrepreneur, as well as domestic and foreign venture capitalists alongside whether the firm is affiliated to a wider extended family or business group network. These are all characterised by simple dummy (1/0) variables. Therefore, the second contribution to the literature is the inclusion of firm level governance characteristics in the estimation.

The final contribution of this paper is to consider the impact of institutional quality on liquidity (and associated illiquidity) transactions costs across a range of institutional environments in SSA. The well established and comprehensive index measures developed by the World Bank (World Bank Governance, 2012) to capture corruption control, government effectiveness, political stability and absence from terrorism, regulatory quality, rule of law and democratic voice and accountability are also included.

The data are a sample of 45,694 monthly bid-ask spread estimates for stocks listed on our sample of twelve SSA equity markets. There is a considerable dispersion in liquidity costs from the South African main board (9.00%) to the ALT-x development board (33.89%) where the latter was established to facilitate funding to smaller entrepreneurial firms. However, other major differences are the level of foreign ownership following privatisation and the presence of extended family groups and business networks. These are both negligible in both South African markets but extensive elsewhere in SSA. Extended family groups are especially common in Mauritius, where they dominate the market, and to a lesser extent in Nigeria, while business networks are common in Zimbabwe and Kenya. In general, liquidity-based transactions costs are reduced where there are high levels of state and foreign venture capital involvement, while the opposite is true where there is participation by foreign partners, domestic venture capitalists, membership of extended family group/ business network and entrepreneurial founders.

Results show that the Lesmond et al. (1999) daily return measure is a better determinant of total trading costs than either turnover or the Liu (2006) construct.[3] However, all liquidity measures are weakly associated with trading costs compared with models that include the liquidity controls plus firm governance measures, suggesting the importance of institutions in liquidity studies. Nevertheless, in cases of severe illiquidity and extreme of price rigidity the simple daily zero returns measure is preferable to more complex liquidity constructs.

To determine the impact of the six World Bank governance institutional quality measures on each of the liquidity (and illiquidity) constructs a sample of 106 annual values are used. Four firm-specific liquidity controls from Stoll (2000) are included: price, traded volume, daily return volatility and market capitalisation. Finally, six firm governance controls are included: state ownership, foreign partner, entrepreneur-founder on the board, membership of extended family group/ business network, and domestic as opposed to foreign venture capital involvement.

The results show that while turnover-based transactions costs are sensitive to all six institutional quality measures, bid-ask spreads are only sensitive to corruption control, government effectiveness, political stability and absence from terrorism, and rule of law. However, using the new zero returns metric, transactions costs are highly sensitive to

---

[1] The Amihud (2002) construct was excluded in later stages of study because of the minimal order flow in many of these markets and its relatively uniform lack of definition.

[2] The Bourse Regionale des Valeurs Mobilieres (BRVM) is a regional stock exchange with a trading floor in Abidjan and a network of licensed brokers, the Societe de Gestion et d'Intermédiation (SGI) spread across the Francophone West African Economic and Monetary Union. Countries include: Cote d'Ivoire, Benin, Togo, Burkina Faso, Mali, Niger, Senegal and Guinea-Bissau.

[3] The selection of optimal liquidity measure used a test proposed by Vuong (1989) (see the appendix of Lesmond, 2005 for details).