LIQUIDITY, OWNERSHIP AND CORPORATE GOVERNANCE IN CARIBBEAN FIRMS

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Abstract

This paper examines the liquidity, ownership and corporate governance relationship in a Caribbean setting. Results show that concentrated ownership reduces liquidity and large shareholdings have implications for liquidity. As the largest shareholder, government and foreign holding companies are less liquid; whilst liquidity is linked to foreign institutions. Firms with holding company (domestic and foreign) as the second largest shareholder are less liquid. Other results show that some corporate governance standards improve stock liquidity. This study shows that the results are unlikely confounded by endogeneity; are robust to different measures of liquidity; and the interaction of large shareholdings and corporate governance is not significant – hinting that large shareholdings substitute for corporate governance rather than complement it.

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1 Introduction

This paper examines the relationship between liquidity and two internal corporate governance mechanisms – ownership and board of directors in an order driven market, the Caribbean. The theoretical basis for the ownership-liquidity relationship is anchored mainly on agency theory. A conflict of interest arises when self-interest escalates and the ability to monitor along with the incentives to do so is dependent upon ownership concentration and type (Rubin, 2007). In the presence of highly entrenched controlling shareholders, corporate resources can be diverted for personal gains at the cost of outside minority shareholders (Johnson et al., 2000; Stulz, 1990). Large shareholdings engender incontestable control[182] thereby creating opportunism to buy and sell shares, contrary to the efficient market hypothesis (Fama, 1970). Empirical evidence shows that large controlling shareholders trade on information and reduce liquidity (Heflin and Shaw, 2000; Dennis and Weston, 2001; Fehle, 2004; Naes, 2004; Attig et al., 2006). Thus, a governance problem arises between majority and minority shareholders (Shleifer and Vishny, 1997; Gomes, 2000). In addition, the trading activities of firms with concentrated shareholdings reduce liquidity (Brockman et al., 2009). To improve stock market liquidity firms should adopt a system of good corporate governance[183]. Better internal corporate governance leads to improved market transparency (Bacidore and Sofianos, 2002; Brockman and Chung, 2003; Chung et al., 2010).

The stock markets of the Caribbean provide a unique opportunity to investigate the liquidity, ownership and corporate governance relationship for several reasons. Little research has been done on frontier markets like the Caribbean and as yet there has been no study on this relationship in these markets. Since ownership structure matters for liquidity[184] and Caribbean markets are less developed with different institutional features from the U.S and Canada, it is unclear whether the effect of ownership structure on liquidity in these well-developed markets is equally applicable to Caribbean markets. Finally, given that corporate governance is weak in firms in the region, investigating board monitoring will reveal the extent of investor protection. Board monitoring is vital to corporate governance as the board of directors and information disclosure complement each other in reducing agency problems (Healy and Palepu, 2001).

[182] Shleifer and Vishny (1997), page 761) argue that "as ownership gets beyond a certain point, large owners gain nearly full control of the company and are wealthy enough to prefer to use firms to generate private benefits that are not shared by the minority shareholders."

[183] Welker (1995); Eleswarapu et al. (2004); Chiyachantana et al. (2004); Jain et al. (2008); Chung et al. (2010).

[184] Heflin and Shaw, 2000; Sarin et al., 2000; Dennis and Weston, 2001; Fehle, 2004; Attig et al., 2006; Rubin, 2007; Schnatterley et al., 2008; Brockman et al., 2009.

By using well – structured dynamic modelling, this study is novel and provides additional evidence on the liquidity, ownership and corporate governance relationship in a Caribbean setting. Specifically the study investigates the relation between: i) liquidity and largest, second largest shareholdings and blockholdings; ii) liquidity and largest and second largest shareholdings by ownership type; iii) liquidity and board using a corporate governance index. To test the hypotheses and alleviate the concern of endogenous relationships between ownership and corporate governance, the study uses a fixed effects panel regression model with unbalanced panel data. Compared to purely cross-sectional data, panels often contain far more information than single cross-sections and thus allow for an increased precision in estimation (Hoechle, 2007, pg1). Panel data models allow correction for unobserved (time-invariant) firm heterogeneity effects. The model uses exchange, year, and industry dummies to reduce concerns about omitted variables bias regarding variation in parameters over time, such as economic development, market size, and differences in accounting and regulatory standards.

Next the endogeneity/reverse causality issue that may exist is considered. An underlying concern is that ownership, corporate governance and liquidity may be simultaneously determined by the same variables. For instance, anecdotal evidence suggests that large shareholders tend to purchase stocks with lower spreads, higher trading volume, and better firm disclosure. To address this concern we estimate a system of three equations (3SLS) with commonly used liquidity proxies (turnover and spread); large shareholdings (by type) and corporate governance as dependent variables. 3SLS estimation deals with endogeneity, is asymptotically efficient, provides good identification in estimations, and eases interpretation of results (Greene, 2005). Ferreira and Matos (2008), and Lin et al. (2009), recommend 3SLS as an appropriate technique for panel data ownership studies.

This study also investigates the interaction effect of ownership with corporate governance, to test whether or not the strength of corporate governance is influenced by the power of controlling shareholders. In closely held firms the reality exists that monitoring may shift from shareholder governance institutions, such as the board of directors to other mechanisms such as concentrated/ large shareholdings. Good corporate governance may be valuable in firms with large controlling shareholders to limit diversion of resources; or it may be less valuable since firms with large shareholders who may disregard or circumvent governance rules.

The motivation for this paper in centred on the following questions. i) How does ownership structure impact market liquidity? ii) How does the quality of board monitoring serve to align the interests of large controlling shareholders with minority shareholders in a firm, which in turn shapes liquidity? To answer these questions, three liquidity proxies are used: quoted S*pread, Zero Return*, and *Turnover*. The *Amihud* (2002) measure serves as the measure of price impact.

1.1 How does ownership structure impact market liquidity?

Research in corporate finance suggests that ownership has become concentrated in the hands of family, institutions, individuals and management in contrast to the Berle and Means' (1932) ownership structure of the modern corporation. In Caribbean firms, ownership concentration is high with on average 63% blockholdings and on average largest shareholders are institutions and holding companies. Large controlling shareholders impose costs on firms (Volpin, 2002) such as the extraction of private benefits (Holderness, 2011). Prior studies find that large controlling shareholders trade on information and reduce liquidity (Heflin and Shaw, 2000; Dennis and Weston, 2001; Fehle, 2004; Naes, 2004; Attig et al., 2006). Since extant literature posits that concentrated ownership is prevalent in countries with weak investor protection (Dyck and Zingales, 2004; Djankov et al., 2008), controlling shareholders may prefer less transparency (Solomon, 2007).

Nonetheless, other studies find that it's the trading activities of large shareholders that reduce liquidity. In firms with controlling blocks, the number of shares available for trading reduces as shares will not be a part of the free float (Bolton and Von Thadden, 1998; Brockman et al., 2009; Prasanna and Menon, 2012). In keeping with reviewed studies, this study expects that large/concentrated shareholdings reduce liquidity.

A priori, the identity of the largest shareholder is expected to influence corporate decisions as different owners have different utility functions. Besides, ownership type may serve to regulate the levels of monitoring and disclosure. Since this study questions investor heterogeneity, four mutually exclusive largest and second largest shareholder groups are identified: institutions – domestic and foreign; holding companies – domestic and foreign; family; and government.

The empirical evidence of the study shows that largest shareholdings and concentrated ownership reduce liquidity. Also, firms in which the largest shareholders are government and foreign holding companies are less liquid; whilst largest institutions are associated with liquidity. Further, the study finds that although the second

largest shareholding does not matter to liquidity, there is some evidence showing that the identity of the second largest shareholder does. In particular, firms with holding company (domestic and foreign) as the second largest shareholder are less liquid. Interestingly, the liquidity relationship with second largest foreign institutions is at best mixed. This result may be in keeping with Fehle (2004) where the trading activity is influenced by the level of institutional ownership or the size of their investment (Schnatterly et al., 2008).

1.2 How does the quality of board monitoring serve to align the interests of large controlling shareholders with minority shareholders in a firm, which in turn shapes liquidity?

Following a number of Commonwealth meetings and publications during 1989-1994, a three year strategic plan (1997-2000) aimed at improving corporate governance was endorsed by the Commonwealth Heads of Government Edinburgh Economic Declaration in October 1997. The Commonwealth Secretariat documented the following consequential factors as matters of concern for emerging Commonwealth markets: lack of accountability; out-dated company laws; and the absence of formal regulations with weak professional institutions. The objective for the Caribbean region was to establish and strengthen a regional corporate governance code relevant to Caribbean countries.

Caribbean firms are characterised by concentrated ownership and research shows that this type of ownership structure often gives rise to opacity. Also, to fulfil the firm's mandate, institutional arrangements by large shareholders can determine the levels of disclosure – mandatory or voluntary. For these reasons, the board serves to alleviate agency problems in firms and improves the quality and quantity of information released. Firms should therefore organise their board in a manner consistent with the costs and benefits of monitoring (Linck et al., 2008). Corporate governance requires that boards: be independent and sub-committees be composed of majority independent directors; and have a larger proportion of outside directors. When this happens the informational efficiency of equity markets and liquidity improves (Klein, 2002; Choi et al., 2007; Levesque et al., 2010).

All in all, firms operating in an environment with weak investor protection laws are linked to severe information asymmetry, poor liquidity, and less incentive to encourage disclosure (Brockman and Chung, 2003). Prasanna and Menon (2012) find that better governed firms in India have higher stock liquidity.

Different from other studies that focus on common measures[185] to evaluate board monitoring and effectiveness re liquidity, this study uses an unweighted governance index comprising of board-related governance standards considered relevant in improving monitoring, disclosure, and transparency. Twenty-eight binary coded questions in six categories defined by governance standards as specified by International Shareholder Services (ISS) are used to construct the corporate governance index. While the corporate governance index is similar to that of Brown and Caylor (2006) and Chung et al. (2010), it is more focussed on board attributes contributing to monitoring and transparency.

Contrary to expectations, results show that the quality of corporate governance, as measured by the governance index (and sub-indices) appears to be ineffective. In keeping with Bebchuck and Hamdani (2009) governance metrics do not consider how governance problems differ in firms with or without a controlling shareholder. Nonetheless, additional tests using each of the 28 individual governance standards show that only six standards are significant and have the expected sign: 1) all directors attend at least 75% of board meetings; 2) compensation committee is comprised solely of independent outside directors; 3) the minimum board size is at least 6 but not more than 15 members; 4) no interlocks exist among directors on the compensation committee; 5) all directors with more than one year service own stock; 6) board members are elected annually.

Since the study did not obtain significant/ satisfactory results with the corporate governance/liquidity relationships an interaction analysis is done. Reason being, good corporate governance may be less valuable in firms with large shareholders as they may disregard or circumvent governance rules. The results show that the interaction is not significant hinting that large shareholdings may substitute for corporate governance rather than complement it. These results may also be compounded by the fact that with the corporate governance 'guiding principles' listed companies can opt for a 'comply or explain' approach.

This paper contributes to the liquidity, ownership and corporate governance literature by examining the role of large shareholdings and board monitoring in the provision of liquidity in frontier markets. Results obtained from

[185] The most common measures are the percentage of independent directors; CEO and Chairman separation; independence of audit, nominating, compensation committees and board meetings held.

this study can assist regulators and policy makers to better understand liquidity issues that will prove beneficial to Caribbean and other frontier markets. Distinct from past research, this study examines both the percentage ownership and identity of the largest and second largest shareholders. Further, in contrast to other studies that focus on common measures to evaluate board monitoring and effectiveness with regards to liquidity, this study constructs an unweighted corporate governance index based on standards adopted from ISS. To the best of my knowledge this is the first paper to investigate the aforementioned relationship in a Caribbean setting.

This paper proceeds as follows. Section 2 presents the theoretical background and hypotheses. Section 3 presents the data sources and discusses liquidity measures and methodology. Section 4 presents the method, empirical findings and analyses and Section 5 concludes the study.

2 Theoretical Background and Hypotheses

Basically, the logic underlying the ownership and liquidity literature is the agency conflict between shareholders. Conflicts of interests borne through self-interest and opportunistic nature of individuals (Jensen and Meckling, 1976) give rise to information asymmetries between managers and shareholders, and between small and large shareholders (Gomes, 2000). Under the "active monitoring hypothesis" (Shleifer and Vishny, 1997; Zeckhauser and Pound, 1990), concentrated ownership thwarts the value destroying actions of managers (Morck, 2000) and persuades them to disclose more in order to increase share prices and enhance firm value. Arguably, public disclosure reduces information asymmetry, reduces the cost of capital, and improves market liquidity (Amihud and Mendelson, 1986; Welker, 1995). The active monitoring viewpoint thus predicts a positive relationship between concentrated ownership and liquidity.

Contrariwise, the "expropriation hypothesis" asserts that concentrated ownership generates agency problems between controlling and minority shareholders (Lefort, 2005). In particular, at high levels of ownership, large shareholders may become entrenched and divert resources from the firm and minority shareholders to themselves (Shleifer and Vishny, 1997). Accordingly, the expropriation hypothesis predicts a negative relationship between concentrated ownership and liquidity.

Concentrated ownership is prevalent in countries with weak investor protection (Dyck and Zingales, 2004; Djankov et al., 2008) and firms operating in such environment have severe information asymmetry, poor liquidity, and less incentive to encourage disclosure (Brockman and Chung, 2003). As weak legal systems and poorly functional institutions are inadequate to meet the challenges of entrenched controlling shareholders, large owners are at liberty to misallocate resources and exacerbate information asymmetry by reducing information disclosure (Stulz, 1988; Kyle, 1985). Poor disclosure and transparency practices are linked with lower liquidity (Chen et al., 2007).

Two hypotheses are set forth regarding the trading behaviour of large shareholders. i) The adverse selection hypothesis posits that large shareholders with private information know beforehand that the going market price of the share is incorrect. They execute trades until the price reflects the valuation of the security, i.e., when the private information becomes public. As this information may take some time before the public becomes aware, a monotonic price movement occurs. ii) The trading hypothesis postulates that when investors turn over their portfolios more often, transaction costs are lower (Demsetz, 1968). Lower transaction costs will be more valuable to investors as they signify ease of market entry and exit. This translates into more liquid securities with higher turnover frequency. But this condition reverses when large shareholders enter the trading process. In the presence of a large blockholder, only shares in the free float will trade. Ownership concentration can cause a separation between free float and market capitalization. When this happens, fewer shares are traded and ultimately reduce liquidity.

All things considered, control by large shareholders reduces liquidity in a firm's publicly traded shares (Glosten and Milgrom, 1985; Holstrom and Tirole, 1993; Bhide, 1993). Also, concentrated ownership reduces free float in the market because shares held by large investors are not likely to be a part of the free float (Bolton and Von Thadden, 1998; Brockman et al., 2009). Consequently, there will be fewer active traders and liquidity decreases (Rubin, 2007; Ginglinger and Hamon, 2012). Large shareholdings and concentrated ownership are inversely related with liquidity.

Hypothesis1a: Concentrated ownership reduces liquidity.

Hypothesis1b: Largest shareholdings reduce liquidity.

The presence of more than one controlling shareholder can substantially decrease the private benefit of extraction by the controlling (largest) shareholder (Gutierrez and Tribo, 2004). Specifically, a second large shareholder, if present, is likely to contest control and thus limit the controlling shareholder from taking one-sided actions that might hurt other shareholders (Bennedsen and Wolfenzon, 2000). In addition, competition between non-controlling large shareholders can result in more information being impounded in prices Edmans and Manso (2011). All else equal, the study predicts greater liquidity in firms that have a second largest shareholder:

Hypothesis 2: Firms with a second largest shareholding have on average higher liquidity.

Rather than treating large shareholders as a homogeneous group, the heterogeneous behaviour of large shareholders is taken into consideration, consistent with Vitols (2004) and Aguilera and Jackson (2003, 2010). A priori, the identity of the largest shareholder is expected to influence corporate decision as different owners will have different utility functions. Additionally, ownership type may serve to regulate levels of monitoring and disclosure. Accordingly, largest and second largest shareholders are classified as: institutions – domestic and foreign; holding companies – domestic and foreign; family; and government.

The literature on the trading behaviour of institutional investors takes a dyadic approach. Institutional investors have strong fiduciary responsibilities; are prudent investors (Del Guercio, 1996); and prefer stocks with better disclosure and higher market liquidity (Falkenstein, 1996; Bushee and Noe, 2000; Chung and Zang, 2011). Also, institutional investors are active traders, (Schwartz and Shapiro, 1992) who are more sensitive to high transactions costs associated with illiquid stocks (Gompers and Metrick, 2001).

Conversely, institutional shareholdings lead to wider spreads through the information asymmetry created (Rubin, 2007). This information acquisition and processing (Grullon and Wang, 2001), impact price permanently (Sias et al., 2006) and reduce liquidity (Dennis and Weston, 2001). As the relationship between institutional shareholders and liquidity is an empirical one, we do not predict a sign:

Hypothesis 3: There is a relationship between firms with institutional investors as their largest shareholder and liquidity.

As outside blockholders, holding companies may have strong incentives to create value for their shareholders and actively monitor management (La Porta et al., 2000). But monitoring may come at a cost such as the extraction of private benefits. As the largest owner, holding companies may manipulate the extent of disclosure to maximize private benefits such as changes in the market value of shares (Makhija & Patton, 2004). As blockholdings have been linked to higher information asymmetries, which reduces liquidity (Ginglinger and Hamon, 2012), in the same vein, the activities of holding companies may reduce liquidity.

Hypothesis 4: Firms with holding companies as their largest shareholder have lower liquidity.

Family firms have as their objective maximization of firm value (Morck et al., 1988; Anderson and Reeb, 2003) since their personal wealth is often tied to the firm (Almeida and Wolfenzon, 2006). Family firms tend to be associated with long term horizons, pursue value creating projects, and have fewer incentives to expropriate corporate opportunities, thereby reducing agency conflicts (Villalonga and Amit, 2006). Resultantly, opportunistic behaviour and asymmetric information are less since there is no separation between ownership and control and a more transparent environment ensues (Wang, 2006). Revealing information reduces the cost of capital and leads to greater liquidity (Amihud and Mendelson, 1986). Plus when family firms disclose more the price impact of a trade reduces (Diamond and Verrachia, 1991) as private information is now impounded in prices.

However, family firms do not always create value for the firm or its minority shareholders (Anderson and Reeb, 2003) as stock markets react negatively when family heirs are appointed as managers (Perez-González, 2006). In keeping with agency theory, controlling shareholders will take actions with benefits that are not shared with minority shareholders, such as choosing a board of directors consisting mostly of the less independent family members (Anderson and Reeb, 2003). Less monitoring may occur, thereby increasing opacity, for instance, hiding indirect financial benefits such as, related party transactions; or facilitating managerial entrenchment of family members (Shleifer and Vishny, 1997; Anderson and Reeb, 2003).

Hypothesis 5: There is a relationship between family shareholdings and liquidity.

Government ownership tends to be higher in emerging economies characterised as having poor protection of property rights (La Porta et al., 2002). Government owned enterprises are associated with agency problems arising from the self-interested nature of appointed managers and government representatives (Wong, 2004) who usually lack the necessary incentive to engage in effective monitoring. Choi et al. (2011) argue that government involvement in the economy and financial system has a significant impact on agency problems because government can use ownership or influence to favour certain parties and expropriate rents from minority shareholders.

Agency costs are likely to be high in government firms as there are no active shareholders acting as monitors. Plus the owners (citizens) have little or no corporate governance mechanisms to influence how managers run the firm (Cuervo-Cazzura and Dau, 2009). This suggests that the information environment of government-owned firms is non-transparent and liquidity is thus expected to be lower.

Hypothesis 6: Firms with government as the largest shareholder have lower liquidity.

Financial liberalization facilitates the opening of domestic markets to international investors with the intention of providing diversification benefits, lowering the required risk premium (Warther, 1995), and ultimately enhancing market liquidity (Levine, 2001). On one hand foreign investors show a preference for large firms with low insider ownership; stocks that are associated with lower information asymmetry, liquidity and international presence (Bushee and Noe, 2000; Dahlquist and Robertson, 2001; Ferreira and Matos, 2010). But on the other hand, since they are geographically separated from the firm, foreign investors may seek more information and interfere with the firm's operations/business and collect private information (Seasholes, 2004; Choe et al., 2005; Huang and Shiu, 2005).

The study examines the shareholding of two types of largest foreign shareholders for which there is data. The first is foreign institutional investors. Foreign institutions prefer to invest in emerging countries with stronger accounting standards, shareholder rights, and legal framework (Aggarwal et al., 2005). Thus, foreign institutions will exert pressure on firms to increase disclosure. Increased disclosure reduces information asymmetries between buyers and sellers of shares and increases liquidity (Diamond and Verrachia, 1991, Heflin et al. 2005). Therefore,

Hypothesis 7: There is a positive relationship between firms with foreign institutional investors as their largest shareholder and liquidity.

The second group of largest foreign shareholder is foreign holding companies. As blockholders are linked to increase in firm investment (Cronqvist and Fahlenbrach, 2009), and prevent earnings manipulation (Farber, 2005), in a like vein the actions of foreign holding companies will contribute to a liquid market.

Hypothesis 8: There is a positive relation with the shareholdings of foreign holding company and liquidity.

3 Data and Method

3.1 Data collection and data sources

When undertaking a study in emerging or frontier markets, availability and quality of data is usually an issue. This study uses daily data for 71 listed firms on the BSE, JSE and TTSE from January 2005 to December 2011. The sample period begins in 2005 as this was the year the Caribbean Technical Working Group was formed and a draft Caribbean code of corporate governance was issued. More importantly, the enhanced corporate disclosure due to this event makes it possible to collect the required data. There is no electronic database for Caribbean firm ownership and corporate governance characteristics. Data on the top ten shareholders[186] (percentage shareholding and identity) and the number of shares outstanding are manually collected from the Corporate Governance section of the annual reports for 2005-2011. The financial section of the annual reports provides financial data including total assets, total liabilities, and equities.

Official daily trading data for liquidity variables, such as bid and ask prices; volume traded; last close (previous price) and current close prices; are hand collected from the official websites of the stock exchanges. Market

[186] Top 10 shareholders as disclosed in the annual reports.

capitalization is computed as the product of share price and number of shares outstanding at year end. This value is converted to U.S. dollars at the year-end exchange rates retrieved from the Central Bank's webpage for each respective country.

3.2 Variables

3.2.1 Dependent variable

The dependent variable is liquidity and since it is asserted that none of the existing liquidity measures can suitably capture stock liquidity (Korajczyk and Sadka, 2008), for robustness three different annual measures, based on averages of daily measures are used. For each firm, the measures are: *Spread, Zero Return* and *Turnover,* while The *Amihud* (2002) illiquidity ratio measures price impact.

Spread

The quoted *Spread* measures pre-trade transactions costs and is the implicit trading cost for market orders when a trade occurs at the quoted price with no price movement. The average of the bid-ask spread is often used to estimate the "fair" market value at the time of the quote. The quoted ask includes a premium for buying immediately and the bid price includes a discount for immediate selling. Since the markets in the study are order driven, most trades will occur at the bid or ask prices. The percentage proportional quoted S*pread* is defined as:

$$Spread_t = ask_t - bid_t/(ask_t + bid_t)/2 \ \ x\ 100.$$

Zero Return

The study uses the low frequency liquidity measure, the "zero day return" developed by Lesmond et al. (1999). This measure is calculated from daily return and not information about quotes or the order book. According to Lesmond et al. (1999), if the trading costs outweigh the benefits of informed trading, informed traders will not trade. This lack of trading activity leads to zero returns for that day. Thus, days with high transaction costs will see a zero return indicating that a larger value translates into lower liquidity. Studies that use this measure are Lesmond (2005), Bekaert et al. (2007), and Goyenko et al (2009)[187]. *Zero Return* is calculated as:

$$Zero\ Return = Number\ of\ trading\ days\ with\ zero\ returns/Number\ of\ trading\ days\ for\ the\ year.$$

Turnover

The computed trade based measure of liquidity is tradable turnover. Turnover has been used to measure volume (Campbell et al., 1993) and the impact of information on trading activity (Lakonishok and Smidt, 1986). Since turnover is related to the trading activities of owners and captures trading frequency, stocks with a high trading frequency have a smaller price for immediacy as frequent trading reduces the cost of inventory controlling (Demsetz, 1968). Also, high trading volume stocks have lower levels of information asymmetry as information is revealed by prices (Glosten and Milgrom (1985). Turnover calculation uses daily trading volume and the number of shares outstanding.

$$Turnover = \sum_{D=1}^{D} Volume/Shares\ outstanding.$$

Amihud Illiquidity Ratio

Given the deficiency of transaction level data, the low frequency proxy, the *Amihud* illiquidity (2002) ratio, is used to measure the daily price impact of the order flow. Prior research finds that information asymmetry can also be captured by the price impact of trades because trades convey private information (Huang and Stoll, 1997). A large trade has the capability of attracting the attention of other traders as the possibility exists that the trade might be information motivated. For instance, a large purchase could be an indication of good news and a large sale could imply bad news. Amihud illiquidity ratio is a robust measure of price impact (Hasbrouck, 2009). Studies conducted by Lesmond (2005), Goyenko et al., (2009), and Karolyi et al. (2012) using daily data find that this measure reliably captures liquidity. A higher value of *Amihud* represents lower liquidity.

The *Amihud* ratio is expressed as the daily ratio of the absolute value of stock returns to the dollar volume, averaged over the number of trading days in the firm's fiscal year. The average is calculated over all positive

[187] Lesmond (2005) studies 23 emerging markets; Bekaert et al. (2007) use this ratio in a study on the relationship between asset pricing and liquidity costs in 19 emerging markets; Goyenko et al. (2009) use daily stock data base from CRSP for NYSE data from 1993 to 2005; Levine and Schmukler (2006) use both Amihud (2002) and zero return to test the relationship between internationalization and liquidity in 45 emerging economies.

volume days since the ratio does not allow for days that have zero volumes. To adjust for market-wide liquidity changes which can impact the price of individual stocks (Amihud, 2002), the Amihud liquidity measure is converted into a natural logarithm.

$$Amihud_{iy} = 1/D_{iy} \sum_{D=1}^{D_{iy}} |ret_{iyd}|/volume_{ivyd}.$$

In tests with the Amihud measure as the dependent variable, *Ln(DailyVolume)* is the control variable since dollar volume is included in the denominator of the Amihud measure.

3.2.2 Independent variables

Ownership

The independent variables of interest are ownership and corporate governance. This study defines a firm as having a concentrated ownership structure if its largest percentage shareholding is at least 20% (Thomsen and Pedersen 1996; Faccio and Lang 2002); otherwise, the firm is widely held. Following prior studies by Demsetz and Lehn (1985), Demsetz and Villalonga (2001), and Lins (2003), this study examines the percentage ownership of the largest shareholder, *Largest_Shareholding*; the second largest shareholder, S*econd_Shareholding*; and *Blockholdings* defined as shareholdings 5% or more. As well, the largest and second largest shareholdings are identified as institutional – domestic or foreign; family; holding company – domestic or foreign; and government.

Corporate governance

The quality of corporate governance is proxied by an unweighted governance index that uses board-related governance standards considered relevant in improving monitoring, disclosure, and transparency. Twenty-eight binary coded questions in six categories defined by governance standards as specified by ISS are used to construct the corporate governance index. For every governance item, each firm is scored per year based on whether it meets the minimum standard according to the ISS Corporate Governance: Best Practices User Guide and Glossary (2003).[188] Similar to Klapper and Love (2004) and Chung et al. (2010), the governance index adopts a dichotomous procedure whereby an item scores 1 if the standard is met, 0 otherwise. *Govindex* is calculated as follows:

$$Govindex_j = \Sigma(S_{i,j})/m_{i,j}\ .$$

where *Govindex* is the aggregate governance score, for company *j*, $0 \leq Govindex_j \leq 1$; $S_{i,j}$ is equal to 1 if the standard is met and 0 if the standard is not met or not disclosed; $m_{i,j}$ is the maximum governance score for each company, which is 28. Appendix 1 shows the 28 board-related governance standards in the six categories.

3.2.3 Firm-level explanatory variables

Prior research suggests share price, return volatility, firm size and trading activity as control variables (Stoll, 1978; Ho and Stoll, 1981; Diamond and Verracchia 1991; Gompers and Metrick, 2001). Return volatility is the standard deviation of daily returns for each firm, for each year over the sample period. Firm size uses market capitalization as the measure and is calculated as closing share price times the number of shares outstanding at the end of each year. Trading volume is the average of annual total daily volume traded for each firm. Dollar volume is the average of daily volume times daily closing price for each firm, for each year over the sample period.

Control dummies are used for cross listed firms, where 1 denotes cross-listing and 0, otherwise. Other control dummies are exchange, industry, and year to control for time specific factors that may potentially affect market liquidity. This is done to reduce concerns about omitted variables bias regarding variation in parameters over time, such as differences in accounting and regulatory standards.

[188] ISS provides 61 individual measures for corporate governance ratings. So from the ISS Corporate Governance: Best Practices User Guide and Glossary (2003), 28 governance standards that are closely related to board monitoring and operational transparency are selected. These standards are in keeping with those in the corporate governance code for the Caribbean issued in 2005. ISS does not code data as representing minimally acceptable governance but they provide sufficient information to enable one to make such a determination. By using information in ISS Corporate Governance: Best Practices User Guide and Glossary (2003) the study determines if a firm's governance is minimally acceptable (coded 1) or unacceptable (coded 0).

Board size has implications for board functioning (Coles et al., 2008). Large boards are better monitors of management (Kula, 2005); provide advice and expertise to the CEO (Hermalin and Weisbach, 1988); and lead to higher firm performance (Dalton & Dalton, 2005). Smaller board have lower monitoring costs and faster decision making (Mak and Kusnadi, 2005). When monitoring increases private benefits decrease and liquidity increases (Holstrom and Tirole, 1993). Board size is the natural logarithm of the total number of board members (Krishnan and Visvanathan, 2008; Lam and Lee, 2008).

4 Method, Empirical Findings and Discussion

The choice of computing the regression coefficients lies between a random effects or a fixed effects model. The random effects model specification relies on the strong assumption that the unobserved firm specific effects are uncorrelated with all the regressors, while the fixed effects specification allows for unspecified forms of covariance. A Hausman (1978) test is done and rejects the random effects specification.

Fixed effects are used as an endogeneity control if the unobservable omitted variables are correlated with stock liquidity and ownership remain constant through time. Because one could say ownership and liquidity variables may result in clustering of errors, to correct for firm dependency, this study follows Petersen (2009) and uses the clustering robust standard errors by company. Clustered errors allow for heteroskedasticity and for arbitrary autocorrelation within the company but treat the regression errors as uncorrelated across companies (Stock and Watson, 2011).
The following panel regression model is estimated for the study of BSE, JSE and TTSE firms:

$$Liquidity_{i,t} = \alpha + \beta_1 Ownership_{i,t} + \beta_2\, CorporateGovernance_{i,t} + Controls_{i,t} + Fixed\ Effects_{i,t} + \varepsilon_{i.,t} \quad (1)$$

where for firm *i* and year *t*, α is the intercept; β is the regression coefficient; and $\varepsilon_{i.,t}$, is the composite error term. $Controls_{i,t}$ include the following control variables: price, return volatility, volume, size, and a dummy variable representing cross-listed stocks. For robustness country, industry, and year fixed effects are included to capture any unobserved (time-invariant) heterogeneity across countries, industries and time respectively.

4.1 Descriptive statistics

Table 1 provides the summary statistics for liquidity, ownership and corporate governance for the pooled sample. The average firm has a market capitalization US$434 million, an average price of $13.96 per share and experiences 0.108 million trades per day. The average liquidity as measured by S*pread* is 4.67%; Z*ero Return* is 20%; and 3% for *Turnover*, suggesting that low levels of liquidity. Low turnover occurs when prices fluctuate a lot and if traders receive a lot of information about the firm, low liquidity may result. The average *Amihud* daily price impact is 1.66 and ranges from 0 to 10.59 suggesting that some level of information may be contained in prices. If a trade contains no new information, its price impact should be zero. The mean volatility is high (53%) implying that stock prices vary over a large range of values within a short period of time. Emerging economies are characterised by high volatility and similar evidence is documented by Bekaert and Harvey (1995) with volatility ranging from 18% in Jordan to 104% in Argentina.

The mean *Largest_Shareholding* is 47%; and 66% of the firms have at least one largest shareholder. Institutions are the largest shareholders: with on average 32% in the hand of domestic shareholders and 20% being foreign shareholders. Holding companies are the next largest shareholders, with on average, 29% held locally and 12% by foreign shareholders. On average, 13% of the outstanding shares are held by *Second_Shareholding*, with the second largest shareholder being local institutions (52%). The mean total blockholdings is 63% and ranges from 5% to 97%, indicating closely held firms. Other ownership statistics show the median *Largest_Shareholding* is approximately 50%, *Second_Shareholding* is 10% and *Blockholdings* is 71%. These ownership statistics are large by Anglo-American standards but are in line with continental Europe.[189]

The mean (median) board size for the sample of Caribbean firms is 10 directors, of which on average 51% are independent. The board sizes in the sample are on average larger than Singapore and Malaysian firms (median of 7.3 and 7.5 respectively), studied by Mak and Kusdani (2005). The maximum value for *Govindex* is 0.71, as

[189] Becht and Roell (1999) report in the Netherlands the median largest voting block is 43.5% and in Austria – 45%-55%; Demirag and Serter (2003) report an average of 45.10% in Turkey for largest shareholder ; Earle et al. (2005) mean blockholder is 60.90% and median 67.20%- Budapest.

shown in Panel C, whilst the mean value of *Govindex* is 0.37, indicating that firms meet less than half the governance standards.

Table 2 shows the results of parametric (t-test) and non-parametric (Mann Whitney) tests of significance. For the liquidity variables, a high value of *Turnover* and a small value of *Spread* translate into high liquidity, whereas a higher value of *Zero Return* and *Amihud* represents lower liquidity and higher price impact respectively. Results show a general support for the prediction that the identity of the largest shareholder matters to liquidity. Specifically, *Largest_HoldingCompany* (domestic and foreign) have significantly lower liquidity, proxied by *Turnover*. So too are *Second_Government* and *Second_InstitutionForeign*. The reverse is found for *Largest_InstitutionForeign* when liquidity is proxied by *Zero Return*. As well, *Second_HoldingCompany* increase with liquidity as there is lower price impact, proxied by *Amihud.*

Table 1. Summary statistics for 363 firm-year observations, 2005-2011

	Mean	P25	P50	P75	Max	Min	SD
Panel A: Liquidity Measures							
Spread	4.670	0.990	3.110	7.100	19.670	0.000	4.660
Zero Return	0.200	0.130	0.180	0.250	0.870	0.050	0.110
Turnover	0.030	0.010	0.020	0.040	0.100	0.000	0.020
Amihud	1.660	0.120	0.540	2.420	10.590	0.000	2.330
Panel B: Ownership							
Largest_Shareholding	0.470	0.230	0.500	0.660	0.970	0.050	0.250
Second_Shareholding	0.130	0.050	0.100	0.160	0.440	0.050	0.100
Blockholdings	0.630	0.480	0.710	0.810	0.970	0.050	0.240
Largest_Family	0.020	0.000	0.000	0.000	1.000	0.000	0.130
Largest_Institution	0.320	0.000	0.000	1.000	1.000	0.000	0.470
Largest_InstitutionForeign	0.200	0.000	0.000	0.000	1.000	0.000	0.400
Largest_HoldingCompany	0.290	0.000	0.000	1.000	1.000	0.000	0.450
Largest_HoldingCompanyForeign	0.120	0.000	0.000	0.000	1.000	0.000	0.320
Largest_Government	0.050	0.000	0.000	0.000	1.000	0.000	0.220
Second_Family	0.050	0.000	0.000	0.000	1.000	0.000	0.210
Second_Institution	0.520	0.000	1.000	1.000	1.000	0.000	0.500
Second_InstitutionForeign	0.060	0.000	0.000	0.000	1.000	0.000	0.250
Second_HoldingCompany	0.210	0.000	0.000	0.000	1.000	0.000	0.410
Second_HoldingCompanyForeign	0.090	0.000	0.000	0.000	1.000	0.000	0.280
Second_Government	0.070	0.000	0.000	0.000	1.000	0.000	0.260
Panel C: Corporate Governance							
Govindex	0.370	0.290	0.320	0.430	0.710	0.180	0.120
Board_Independence	0.510	0.360	0.500	0.670	1.000	0.080	0.190
Panel D :Control Variables							
DailyVolume ($mil)	0.108	0.005	0.024	0.090	2.010	0.000	0.238
DollarVolume ($mil)	5.484	1.130	7.184	37.037	433.505	0.003	0.000
Volatility	0.530	0.290	0.420	0.570	4.240	0.030	0.510
Leverage	0.580	0.330	0.620	0.850	0.980	0.000	0.280
Board Size	10.230	9.000	10.000	12.000	16.000	6.000	2.100
Size (US$ mil)	434.000	78.500	176.000	451.000	3280.000	1.610	645.000
Average Price	13.960	1.630	5.310	17.800	252.730	0.000	25.600

Note: This table reports summary statistics for the sample stocks are provided in the table above. *Zero Return* is the number of trading days with zero returns/number of trading days for the year; *Spread* is[ask-bid/(ask +bid)/2] *100; *Turnover* is volume/shares outstanding; *Amihud* is average over the year of the daily ratio of the stock's absolute return to its dollar trading volume; *Largest_Shareholding* is the percentage of shares directly owned by the largest shareholder; *Second_Shareholding* is the percentage of shares directly owned by the second largest shareholder; *Blockholdings* is the sum of all shareholding greater than 5%; *Govindex* - scores obtained using minimum standards provided by ISS Corporate Governance; Volatility is the standard deviation of the daily returns for each firm, each year; *Board_Independence* is the number of independent directors/total number of directors; *Board_Size* is the total number of directors on the board; *Size_(Assets)* is the firm's assets in U.S. dollars; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices each year; *DailyVolume* is the total of daily volume traded each year; *DollarVolume* is the total daily dollar volume each year ,where daily dollar volume = volume*closing price.

Table 2. Univariate tests for differences in mean and median liquidity

		Turnover			*Zero Returns*			*Spread*			*Amihud*		
	Groups	Mean	T-test p-value	Mann Whitney p-value	Mean	T-test p-value	Mann Whitney p-value	Mean	T-test p-value	Mann Whitney p-value	Mean	T-test p-value	Mann Whitney p-value
Large_Family	0	0.021	0.011	0.100	0.199	0.339	0.339	4.153	0.153	0.188	1.772	0.451	0.517
	1	0.047			0.161			6.681			1.011		
Second_Family	0	0.022	0.028	0.102	0.199	0.427	0.677	4.395	0.003	0.001	1.797	0.737	0.436
	1	0.035			0.176			7.935			1.587		
Large_Government	0	0.021	0.685	0.635	0.195	0.037	0.010	4.101	0.097	0.249	1.736	0.407	0.358
	1	0.019			0.240			5.790			2.226		
Second_Government	0	0.023	0.044	0.037	0.196	0.219	0.276	4.872	0.000	0.000	1.714	0.050	0.953
	1	0.014			0.223			0.907			2.739		
Large_HoldingCompany	0	0.020	0.114	0.007	0.204	0.162	0.036	4.610	0.009	0.000	1.635	0.152	0.279
	1	0.024			0.187			3.260			2.027		
Second_HoldingCompany	0	0.022	0.683	0.894	0.206	0.006	0.015	4.191	0.009	0.022	1.971	0.009	0.029
	1	0.024			0.168			5.771			1.129		
Large_HoldingCompanyForeign	0	0.022	0.023	0.020	0.198	0.850	0.600	4.012	0.039	0.087	1.720	0.383	0.210
	1	0.014			0.202			5.488			2.074		
Second_HoldingCompanyForeign	0	0.023	0.837	0.089	0.195	0.051	0.004	4.386	0.008	0.000	1.787	0.601	0.298
	1	0.024			0.242			7.219			2.083		
Large_Institutional	0	0.021	0.809	0.445	0.189	0.022	0.010	4.306	0.518	0.996	1.877	0.200	0.867
	1	0.021			0.216			3.976			1.530		
Second_Institution	0	0.020	0.056	0.010	0.189	0.160	0.397	5.440	0.000	0.001	1.635	0.273	0.523
	1	0.025			0.205			3.661			1.931		
Large_InstitutionForeign	0	0.021	0.815	0.218	0.204	0.019	0.017	4.132	0.532	0.085	1.824	0.260	0.012
	1	0.021			0.169			4.530			1.437		
Second_InstitutionForeign	0	0.024	0.000	0.000	0.199	0.370	0.155	4.437	0.105	0.223	1.793	0.872	0.616
	1	0.007			0.174			5.957			1.716		

Note: Table2 examines the relation between liquidity, and ownership by using a univariate ownership identity approach. *Large_Family, Large_Institution; Large_HoldingCompany*; *Large_InstitutionForeign; Large_Goverment* and *Large_HoldingCompanyForeign, Second_Family,Second_Institution,Second_HoldingCompany , Second_HoldingCompanyForeign;Second_InstitutionForeign;Second_Government* are dummy variables indicating whether the largest and second largest shareholdings belong to family, institution, holding company, foreign institution, government or foreign holding company respectively. *Zero Return* is the number of trading days with zero returns/number of trading days for the year; *Spread* is[ask-bid/(ask +bid)/2] *100; *Turnover* is volume/shares outstanding; *Amihud* is average over the year of the daily ratio of the stock's absolute return to its dollar trading volume. P-values from parametric t-tests and non-parametric Mann-Whitney tests are reported.

4.2 Multiple regression analysis

Results for the various liquidity measures are reported in Table 3. An interesting result is a significant negative relationship between *Largest_Shareholding*, *Turnover* and *Zero Return*, as shown in specifications (1) and (3). These results are at best mixed, implying that even though some largest shareholders trade less and reduce liquidity (Bhide, 1993), others execute trades since the deviation of the market price from the true value of the stock is larger than transaction costs (Lesmond et al., 1999). An explanation for this may be the persistent skill of interim trading by institutions (Puckett and Yan, 2011) rather than short lived private information trading. As outlined, institutions as largest shareholders are on average 32 % domestic and 20% foreign.

Other results show that ownership concentration decreases liquidity, in agreement with Hypothesis 1a. *Blockholdings* have a negative and significant relationship with *Turnover* and *Spread*. This finding is consistent with high ownership concentration reducing the intensity of trading activity (both order driven and trade based) and the continuity of the order flow (Kothare, 1997). Also, when the *Amihud* measure is the dependent variable, specification (5) reports *Blockholdings* have a significantly positive relationship. In keeping with the literature on the Amihud (2002) price impact measure, larger positive values mean greater price impact and lower liquidity. Of the control variables, only *Size* and *DollarVolume* have some explanatory power. Dollar volume and liquidity are especially important to institutional investors as an indication of market entry and exit, without price influence.

Contrary to expectations, the size of the second largest shareholding (*Second_Shareholding*) and the quality of corporate governance (*Govindex* and *Board_Independence*) are insignificant.

The identity of the largest shareholder is expected to influence corporate decision and the corporate information environment, both of which may impact liquidity. Four identity groups of largest and second largest shareholding are examined: financial institutions (domestic and foreign); family; holding companies (foreign and

domestic); and government. In the results shown in Table 4, the liquidity measure is first regressed on each identity group separately; and then uses *Largest_Family* as the base case. Only significant results are reported. Specification (1) shows, *Largest_Government* has a negative (positive) and significant relationship with *Turnover (Spread),* implying that firms with government as the largest shareholder are less liquid. The finding is consistent with Wei et al. (2005) and supports Hypothesis 6.

Table 3. Fixed effects panel regressions for liquidity, ownership and corporate governance

	Turnover		*Zero Return*	*Spread*	*LnAmihud*
	(1)	(2)	(3)	(4)	(5)
Largest_Shareholding	-0.023**		-0.099*		
	(-3.04)		(-2.26)		
Second_Shareholding	-0.006	0.014	-0.022	-2.358	0.503
	(-0.49)	(1.41)	(-0.24)	(-0.64)	(0.44)
Blockholdings		-0.021*		3.565*	1.624**
		(-2.38)		(2.19)	(3.06)
Govindex	-0.003	-0.002	0.007	-4.155	-0.026
	(-0.18)	(-0.14)	(0.08)	(-1.66)	(-0.02)
Ln(Size)	-0.006***	-0.006***	0.012	-0.566	-0.621***
	(-4.85)	(-4.85)	(1.31)	(-1.89)	(-5.50)
Average_Price	0.0574	0.067	-0.0133	-1.03	-1.290*
	(1.30)	(1.53)	(-0.07)	(-0.12)	(-2.02)
Ln(DollarVolume)	0.008***	0.008***	0.007	-0.534**	-0.296***
	(7.07)	(7.11)	(1.33)	(-2.93)	(-4.42)
Ln(DailyVolume)					-0.038
					(-0.50)
Volatility	0.068	0.039	-0.120	-0.124	0.256
	(0.46)	(0.25)	(-0.11)	(-0.43)	(1.46)
Cross_Listing	-0.0115	-0.0686	0.0189	0.994	0.921**
	(-0.03)	(-0.18)	(0.84)	(1.47)	(3.06)
Intercept	0.024	0.029	-0.087	16.480**	13.000***
	(1.21)	(1.41)	(-0.75)	(2.86)	(6.32)
Number of Observations	321	322	300	311	356
Adjusted R^2	0.516	0.507	0.332	0.608	0.612
Year Dummy	yes	yes	yes	yes	yes
Industry Dummy	yes	yes	yes	yes	yes
Exchange Dummy	yes	yes	yes	yes	yes

Note: This table reports empirical results from estimating Eq. (1). *Largest_Shareholding* is the direct shareholding of the largest shareholder; *Second _Shareholding* is the direct shareholdings of the second largest shareholder and *Blockholdings* is the total shareholdings of 5% or more. The liquidity measures are: *Zero Return* is the number of trading days with zero returns/number of trading days for the year; *Spread* is[ask-bid/(ask +bid)/2] *100; *Turnover* is volume/shares outstanding; *Amihud* is average over the year of the daily ratio of the stock's absolute return to its dollar trading volume; *Govindex*-scores obtained using minimum standards provided by ISS Corporate Governance: Best Practices; Volatility is the standard deviation of the stock daily return during the year; *Size_(Assets)* is the firm's assets in U.S. dollars; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *DailyVolume* is the total of daily volume traded during the year for each year 2005-2011; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

Largest_InstitutionForeign has a negative relation with *Zero Return*, specification (2), suggesting liquidity in these firms. Contrary to hypothesis 8, specifications (6), (7) and (8) report that *Largest_CompanyForeign* have a positive price impact suggesting lower liquidity.

In the next set of regressions, *Second_Family* is the base case and Table 5 reports the results. Shares in firms with *Second_Company* and *Second_CompanyForeign* are less liquid: specification (1), (9) and (10). Regarding S*econd_InstitutionForeign*, the results are mixed. There is a negative (positive) and significant relation with *Turnover, Zero Return (Spread, Amihud).* There is no universal agreement on the empirical evidence of institutional ownership and liquidity, perhaps due to institutional investors being a heterogeneous group. Institutional investors have discretionary power over assets under management and trading may be motivated by portfolio adjustments, market timing or even by herding (Falkenstein, 1996). Or, in keeping with Schnatterly et al. (2008) the size of an institution's investments may be a contributing factor to these results. The larger their proportionate shareholding, the greater will be their access to firm-specific information to initiate trade.

Table 4. Fixed effects panel regression: Liquidity and the identity of the largest shareholders

	Turnover	*Zero Return*	*Spread*		*LnAmihud*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Large_Company	-0.016	-0.033		-0.737	-0.205	0.627	0.354
	(-1.26)	(-1.01)		(-0.92)	(-0.63)	(0.91)	(0.55)
Large_CompanyForeign	-0.026	-0.077			0.844*	1.715*	1.594*
	(-1.92)	(-1.83)			(2.12)	(2.36)	(2.41)
Large_Institution	-0.018	-0.015		-0.595		0.944	0.919
	(-1.39)	(-0.55)		(-0.82)		(1.47)	(1.65)
Large_InstitutionForeign	-0.022	-0.086**		-0.637		0.841	0.817
	(-1.65)	(-2.70)		(-0.49)		(1.14)	(1.17)
Large_Governement	-0.039*	-0.025	4.185***	3.595**		0.271	-0.452
	(-2.20)	(-0.68)	(3.54)	(2.92)		(0.27)	(-0.44)
Second_Shareholding	0.009	0.006	-1.275	-0.665	2.301	2.470	2.803*
	(0.37)	(0.06)	(-0.35)	(-0.18)	(1.84)	(1.96)	(2.17)
Govindex	0.002	-0.001	-4.544	-4.189	-0.046	-0.308	
	(0.14)	(-0.02)	(-1.74)	(-1.62)	(-0.04)	(-0.26)	
Ln(Board_Independence)							0.022
							(0.07)
Ln(Size)	-0.056***	0.019*	-0.363	-0.424	-0.689***	-0.712***	-0.776***
	(-3.92)	(2.15)	(-1.40)	(-1.66)	(-5.90)	(-5.97)	(-4.81)
Average_Price	0.0363	-0.225	0.185	0.560	-10.500	-10.100	-22.200
	(0.82)	(-1.21)	(0.02)	(0.06)	(-1.46)	(-1.42)	(-1.93)
Ln(DollarVolume)	0.008***	0.008	-0.623**	-0.586**			
	(6.73)	(1.90)	(-3.24)	(-2.77)			
Ln(DailyVolume)					-0.009	0.003	-0.016
					(-0.13)	(0.04)	(-0.25)
Volatility	0.037	-0.263	-0.105	-0.112	0.224	0.231	0.0865
	(0.25)	(-0.23)	(-0.35)	(-0.38)	(1.32)	(1.34)	(0.49)
Cross_Listing	0.037	0.031	0.290	0.300	0.617*	0.646*	0.850*
	(1.21)	(1.42)	(0.46)	(0.47)	(2.02)	(2.15)	(2.55)
Intercept	0.0194	-0.250*	15.940**	16.920**	14.780***	14.300***	15.880***
	(0.88)	(-2.11)	(2.90)	(2.99)	(6.79)	(6.37)	(4.54)
Number of Observations	321	300	310	310	355	355	257
Adjusted R^2	0.510	0.337	0.612	0.609	0.606	0.606	0.578
Year Dummy	yes	yes	yes	yes	yes	yes	yes
Industry Dummy	yes	yes	yes	yes	yes	yes	yes
Exchange Dummy	yes	yes	yes	yes	yes	yes	yes

Note: Direct shareholdings of largest shareholders are: *Large_Company; Large_CompanyForeign; Large_Institution*; *Large_InstitutionForeign; Large_Government*. The liquidity measures are: *Zero Return* is the number of trading days with zero returns/number of trading days for the year; *Spread* is[ask-bid/(ask +bid)/2] *100; *Turnover* is volume/shares outstanding; *Amihud* is average over the year of the daily ratio of the stock's absolute return to its dollar trading volume; *Govindex*- scores obtained using minimum standards provided by ISS Corporate Governance: Best Practices; Volatility is the standard deviation of the stock daily return during the year; *Size_(Assets)* is the firm's assets in U.S. dollars; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *DailyVolume* is the total of daily volume traded during the year for each year 2005-2011; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

The test for liquidity and the corporate governance index (and sub-indices) failed to find a significant relationship, so additional tests are done on each of the 28 governance standards. Only six standards contribute to liquidity: 1) all directors attend at least 75% of board meetings; 2) compensation committee is comprised solely of independent outside directors; 3) the minimum board size is at least 6 but not more than 15 members; 4) no interlocks exist among directors on the compensation committee; 5) all directors with more than one year service own stock; 6) board members are elected annually.

Since the relationship with the governance index and the individual standards fail to yield satisfactory results, the study conducts an interaction analysis of largest shareholdings and corporate governance. The rationale for this is good corporate governance may be valuable in firms with large controlling shareholders to limit diversion of resources; or it may be less valuable since firms with large shareholders may disregard or circumvent governance rules. The results (not reported) show the interaction is not significant hinting that large shareholdings may substitute for corporate governance rather than complement it.

Table 5. Liquidity and the identity of the second largest shareholders

	Turnover		*Spread*		*LnAmihud*				*Zero Return*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Largest_Shareholding	-0.027**	-0.021	3.147*	2.072	1.616**	1.254*	1.327*	0.617	-0.129**	-0.134*	-0.131**	-0.132*
	(-2.85)	(-1.68)	(2.13)	(1.10)	(3.23)	(2.13)	(2.36)	(0.80)	(-3.11)	(-2.30)	(-3.02)	(-2.08)
Second_Company	-0.013*	-0.011					-0.217	0.353	-0.001	-0.019	-0.060	-0.077
	(-2.14)	(-1.46)					(-0.47)	(0.74)	(-0.05)	(-0.88)	(-1.59)	(-1.79)
Second_CompanyForeign	-0.017*	-0.017					0.673	1.283	0.086**	0.079*	0.026	0.019
	(-2.43)	(-1.79)					(0.95)	(1.52)	(2.70)	(2.10)	(0.53)	(0.30)
Second_Government	-0.007	-0.006					-0.491	-0.105			-0.051	-0.043
	(-1.00)	(-0.61)					(-0.91)	(-0.16)			(-0.98)	(-0.67)
Second_Institution	-0.008	-0.006			-0.238	-0.232	-0.382	0.108			-0.056	-0.051
	(-1.58)	(-1.01)			(-0.99)	(-0.82)	(-0.86)	(0.24)			(-1.68)	(-1.45)
Second_InstitutionForeign	-0.023***	-0.022**	2.009*	1.903	1.497***	1.403**	1.315*	1.718**			-0.110*	-0.110*
	(-3.96)	(-2.87)	(2.03)	(1.64)	(3.59)	(3.33)	(2.37)	(3.24)			(-2.28)	(-2.15)
Govindex	0.001		-4.536		-0.187		-0.035		0.018		0.037	
	(0.05)		(-1.87)		(-0.16)		(-0.03)		(0.20)		(0.41)	
Ln(Board_Independence)		-0.005		0.105		-0.007		0.076		-0.014		-0.017
		(-1.33)		(0.16)		(-0.02)		(0.24)		(-0.92)		(-1.11)
Ln(Size)	-0.004**	-0.006**	-0.717*	-1.105**	-0.732***	-0.827***	-0.743***	-0.835***	0.084	0.082	0.015	0.017
	(-3.31)	(-2.75)	(-2.40)	(-2.81)	(-6.65)	(-5.71)	(-6.67)	(-5.73)	(0.95)	(0.72)	(1.87)	(1.63)
Average_Price	0.072	0.0809	-0.487	7.05	-11.9	-21.500*	-10.4	-20.7	0.131	-0.244	0.123	-0.221
	(1.87)	(0.84)	(-0.06)	(0.28)	(-1.91)	(-2.02)	(-1.71)	(-1.85)	(0.71)	(-0.40)	(0.64)	(-0.36)
Ln(DollarVolume)	0.007***	0.008***	-0.436*	-0.545*					0.079	0.012	0.005	0.008
	(5.85)	(4.58)	(-2.57)	(-2.43)					(1.31)	(1.58)	(1.02)	(1.13)
Ln(DailyVolume)					0.036	0.019	0.014	-0.004				
					(0.49)	(0.28)	(0.20)	(-0.05)				
Volatility	0.035	-0.056	-0.122	-0.538	0.250	0.132	0.220	0.119	-0.162	-0.077	-0.387	-0.456
	(0.25)	(-0.32)	(-0.42)	(-1.26)	(1.48)	(0.78)	(1.31)	(0.69)	(-0.15)	(-0.07)	(-0.34)	(-0.41)
Cross_Listing	0.002	0.003	0.591	0.397	0.598*	0.661*	0.553	0.513	0.019	0.024	0.026	0.036
	(0.58)	(0.72)	(0.85)	(0.44)	(2.10)	(2.04)	(1.89)	(1.26)	(0.91)	(0.97)	(1.21)	(1.27)
Intercept	0.009	0.044	18.490**	26.540***	15.050***	17.400**	15.760***	17.440***	-0.019	-0.022	-0.057	-0.074
	(0.46)	(1.26)	(3.16)	(3.94)	(7.39)	(5.55)	(7.44)	(5.55)	(-0.16)	(-0.13)	(-0.50)	(-0.46)
Number of Observations	321	231	310	223	355	257	355	257	300	226	300	226
Adjusted R^2	0.541	0.571	0.612	0.563	0.628	0.585	0.630	0.588	0.357	0.430	0.372	0.446
Year Dummy	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry Dummy	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Exchange Dummy	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Note: Direct shareholdings of second largest shareholders are: *Second_Company*; *Second_CompanyForeign*; *Second_Government; Second_Institution*; *Second_InstitutionForeign*. *Zero Return* is the number of trading days with zero returns/number of trading days for the year; *Spread* is[ask-bid/(ask +bid)/2] *100; *Turnover* is volume/shares outstanding; *Amihud* is average over the year of the daily ratio of the stock's absolute return to its dollar trading volume; *Govindex* - scores obtained using minimum standards provided by ISS Corporate Governance; *Size* is the closing share price times number of shares outstanding at year end; Volatility is the standard deviation of the stock daily return during the year; *Board_Independence* is the number of independent directors/total number of directors; *Size_(Assets)* is the firm's assets in U.S. dollars; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices each year for 2005-2011; *DailyVolume* is the total of daily volume traded each year for 2005-2011; *DollarVolume* is the total daily dollar volume each year for 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

4.3 Additional analyses: Endogeneity/ Causality

The endogeneity/reverse causality issue that may exist is considered. An underlying concern is that ownership, corporate governance and liquidity may be simultaneously determined by the same variables. For instance, anecdotal evidence suggests that large shareholders tend to purchase stocks with lower spreads, higher trading volume, and better firm disclosure. To address this concern we estimate a system of three equations with commonly used liquidity proxies (turnover and spread); large shareholdings (by type) and corporate governance as dependent variables. Ferreira and Matos (2008) recommend 3SLS as an appropriate technique for panel data ownership studies. 3SLS estimation deals with endogeneity, is asymptotically efficient (Greene, 2005), provides good identification in estimations, and eases interpretation of results.

In the ownership and corporate governance equations below, we include additional independent variables of turnover, spread, total assets, leverage and board size (Heflin and Shaw, 2000; Gompers and Metrick, 2001; Hartzell and Starks, 2003). The 3SLS estimation equations are:

$$Ownership_{i,t} = \alpha + \beta_1 Liquidity_{i,t} + \beta_2\ CorporateGovernance_{i,t} + Controls_{i,t} + Fixed\ Effects_{i,t} + \varepsilon_{i.,t}. \quad (2)$$

$$Corporate\ Governance_{i,t} = \alpha + \beta_1 Liquidity_{i,t} + \beta_2\ Ownership_{i,t} + Controls_{i,t} + Fixed\ Effects_{i,t} + \varepsilon_{i.,t}. \quad (3)$$

Table 6 reports the results. *Spread* as the dependent variable results are reported (*Turnover* yield similar results). The coefficients of the ownership type/ liquidity estimation are not statistically significant as shown in: Panel A, specification (1); Panel B specification (5); Panel C, specifications (1) and (2); and Panel D specifications (4) and (5). Even though there is a significant positive relationship between the different types of ownership and liquidity: Panel A, specification (2) and (3); Panel B, specifications (4) and (6); Panel C, specification (3) and Panel D, specification (6); the R-square is negative. Regarding the governance/ liquidity causality, the coefficients are not statistically significant. These results suggest that simultaneous bias does not occur in the study and that causality goes only from ownership to liquidity and from corporate governance to liquidity and not the other way around.

5 Conclusion and limitations

The separation of ownership and control gives rise to agency problem between majority and minority shareholders. However agency theory suggests that the ensuing conflict can be resolved through a system of good corporate governance. Existing evidence on ownership structure suggests that weak shareholder protection and ineffective monitoring allow controlling shareholders to make decisions that favour their personal interests. This paper argues that corporate ownership and corporate governance matter for market liquidity and uses board as the corporate governance proxy. Since the board is accountable to stakeholders for the overall performance of the firm, firms with a more effective board are expected to be associated with greater liquidity.

The sample consists of 71 firms in Barbados, Jamaica and Trinidad & Tobago. Results show that consistent with the reviewed studies: i) concentrated ownership reduces liquidity; and ii) ownership type matters for liquidity. Firms with government and foreign holding companies as largest shareholder are less liquid; whilst largest institutions are associated with liquidity. There is some evidence that firms with holding company (domestic and foreign) as the second largest shareholder are less liquid. Worthy to note, the liquidity relationship with second largest foreign institutions is at best mixed.

The study fails to establish a relationship between the index of governance quality and liquidity for Caribbean firms, hinting that firms may need to adopt best practices of corporate governance to improve stock liquidity . Nevertheless, six governance standards were found to have a positive relation with liquidity: 1) all directors attend at least 75% of board meetings; 2) compensation committee is comprised solely of independent outside directors; 3) the minimum board size is at least 6 but not more than 15 members; 4) no interlocks exist among directors on the compensation committee; 5) all directors with more than one year service own stock; 6) board members are elected annually.

These results may be driven by several factors. The first is that institutional settings and corporate governance practices vary across firms and countries (Doidge et al. 2007). For instance, in Barbados and Trinidad & Tobago, at least 20% of the board should be independent of affiliates whereas Jamaica requires that two-thirds of an entity's board comprise independent non-executive directors. Second, as firms in the Caribbean use the 'comply or explain' practices of corporate governance, differences in regulatory practices and enforcement across the countries may have variations pertaining to what to comply to or what to explain. Third, in emerging economies, board monitoring and control may be less effective because formal and informal institutional support to operate as intended may be lacking (Aguilera and Jackson, 2003; Peng, 2004). Consequently, majority shareholders are allowed the privilege to decide on the quality of corporate governance practices implemented. As suggested by Aggarwal et al. (2011), governance standards may be chosen by the controlling shareholder to maximise her private value of the firm. Hence, the controlling shareholder's decision on whether or not to adopt corporate governance standards may involve weighing the benefits of greater liquidity against the costs of say, lessening her ability to expropriate firm value.

Fourth, concentrated ownership impedes disclosure given the disparity in monitoring power held by different types of dominant shareholders (Badrinath et al, 1989; Falkenstein, 1996). So it's probable that in markets like the Caribbean, installing good corporate governance principles might result in majority shareholders' reluctance to institute same. Empirically, the interaction effect is not significant, hinting that large shareholdings may

substitute for corporate governance rather than complement it. In closely held firms, the emphasis shifts away from shareholder governance mechanisms such as board of directors (Berglof and von Thadden, 1999) as controlling shareholders can thwart board action.

5.1 Limitations

Obviously, no study occurs without limitations, this one is no exception. First, a constraint was the inadequacy of reporting standards across the exchanges and the lack of standardization of trading data disclosed. Second, ownership data as disclosed in firm's annual reports does not allow the researcher to trace ultimate ownership through control enhancing mechanisms. Third, the corporate governance standards used are as stated by ISS may be better suited for developed markets as emerging/ frontier markets are still transitioning. Data limitation is the fourth constraint in conducting this study. Despite having electronic networks, the markets studied do not provide access to high frequency data. Intraday transactional databases would enhance the quality of this research with the ability to identify buyer/ seller trades, given that the modelling of the impact of trades on prices is based on the trade initiator (O'Hara, 1995). Thin trading is the fifth limitation. There are many days of non-trading in the data which can potentially result in less potency of the liquidity variables.

The caveat in corporate finance literature is establishing the causality of the relationship, which in this case is large/concentrated ownership leads to lower liquidity and firms with poor corporate governance are less liquid. By taking into consideration endogeneity, future research is recommended using intra-day electronic data.

Table 6. Simultaneous equation estimation — 3SLS – Panel A

	Spread	*Large_ Family*	*Govindex*	*Spread*	*Large_ Company*	*Govindex*	*Spread*	*Large_ Company*	*Govindex*
		(1)			(2)			(3)	
Spread		0.016	-0.004		0.182**	-0.022		-0.136**	-0.063
		(1.22)	(-0.35)		(3.01)	(-1.11)		(-2.75)	(-0.70)
Large_Family	-9.795		0.447						
	(-0.89)		(1.01)						
Large_Company				-5.014		0.158			
				(-1.66)		(1.40)			
Large_CcompanyForeign							-1.650		-0.821
							(-0.70)		(-0.65)
Ln(Board_Size)			0.017**			0.015***			0.004
			(3.24)			(3.69)			(0.49)
Blockholdings	2.140	-0.233**	-0.046	2.689*	-0.518	-0.041	3.211**	0.166	0.003
	(1.17)	(-3.95)	(-0.62)	(2.03)	(-1.86)	(-0.63)	(2.75)	(0.70)	(0.02)
Ln(Size)	-0.854***			-1.172***			-0.582*		
	(-3.49)			(-3.51)			(-2.22)		
Cross_Listing	-0.169	-0.032	0.045	0.003	-0.137	0.0422	0.153	0.046	0.059
	(-0.27)	(-1.48)	(1.77)	(0.01)	(-1.34)	(1.93)	(0.31)	(0.55)	(1.12)
Volatility	0.047	0.004	-0.007	-0.103	-0.001	-0.003	-0.016	-0.010	-0.009
	(0.13)	(0.30)	(-0.51)	(-0.29)	(-0.01)	(-0.25)	(-0.05)	(-0.17)	(-0.31)
Average_Price	0.043	-0.015	0.017	0.016	0.014	-0.014	0.032	-0.021	0.020
	(0.49)	(-0.43)	(0.53)	(1.41)	(0.86)	(-0.38)	(0.39)	(-0.16)	(0.29)
Ln(DollarVolume)	-0.375**	0.006	-0.003	-0.230	0.101*	-0.0144	-0.433**	-0.087*	-0.038
	(-2.87)	(0.72)	(-0.37)	(-1.49)	(2.47)	(-1.23)	(-2.83)	(-2.56)	(-0.67)
Govindex	10.000	-0.765*		11.120*	-0.241		10.010*	-0.821	
	(1.90)	(-2.38)		(2.12)	(-0.17)		(2.06)	(-0.65)	
Leverage		0.133**			0.332			0.356	
		(2.64)			(1.49)			(1.91)	
Ln(Assets)		-0.007	-0.015**		0.063*	-0.021**		-0.032	-0.039
		(-1.12)	(-3.13)		(2.08)	(-2.67)		(-1.47)	(-1.83)
Intercept	18.490***	0.248	0.343*	22.07***	-2.043*	0.596*	14.450***	2.205**	1.424
	(3.43)	(1.17)	(1.99)	(3.93)	(-2.08)	(2.51)	(4.32)	(2.92)	(1.06)
R^2	0.459	-0.010	0.074	0.453	-0.981	-0.139	0.547	-1.451	-2.331
Number of Observations	322	322	322	322	322	322	322	322	322
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Largest shareholders are: *Large_Company; Large_CompanyForeign; Large_Institution*; *Large_InstitutionForeign; Large_Government*. Second largest shareholders are: *Second_Company*; *Second_CompanyForeign*; *Second_Government; Second_Institution*; *Second_InstitutionForeign*. The liquidity measures are: *Spread* is[ask-bid/(ask+bid)/2]*100; *Turnover* is

volume/shares outstanding. *Size* is the closing share price times number of shares outstanding at year end; *Volatility* is the standard deviation of the stock daily return during the year; *Govindex* includes 28 governance standards as outlined in appendix 3; *Ln(Assets)* is the firm's assets in U.S. dollars; *Leverage* is total debt/total assets; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *Board_Size* is the total number of directors on the board; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

Table 6. Simultaneous equation estimation — 3SLS – Panel B

	Spread	*Large_ Government*	*Govindex*	*Spread*	*Large_ Institution*	*Govindex*	*Spread*	*Large_Institution Foreign*	*Govindex*
		(4)			(5)			(6)	
Spread		0.031*	0.049		0.034	0.008		-0.108*	-0.875
		(2.00)	(0.66)		(0.91)	(0.75)		(-2.57)	(-0.78)
Large_Government	21.440		-1.469						
	(1.48)		(-0.75)						
Large_Institution				2.626		-0.106			
				(1.87)		(-1.74)			
Large_InstitutionForeign							-4.624		-9.941
							(-1.59)		(-0.85)
Ln(Board_Size)			0.008			0.014***			0.305
			(0.93)			(4.57)			(0.98)
Blockholdings	3.577*	-0.117	-0.243	3.908**	-0.308	-0.157***	5.825**	0.976***	7.810
	(2.28)	(-1.60)	(-1.19)	(3.10)	(-1.78)	(-3.46)	(2.92)	(5.18)	(0.83)
Ln(Size)	-0.212				-0.603**		-0.305		
	(-0.51)				(-3.11)		(-0.96)		
Cross_Listing	-0.556	0.031	0.057	0.409	-0.052	0.016	0.679	0.108	1.452
	(-0.69)	(1.14)	(1.04)	(0.76)	(-0.83)	(0.93)	(1.10)	(1.51)	(0.85)
Volatility	0.362	-0.017	-0.028	-0.100	0.033	-0.004	-0.071	-0.009	-0.100
	(0.71)	(-0.95)	(-0.64)	(-0.29)	(0.79)	(-0.04)	(-0.21)	(-0.19)	(-0.61)
Average_Price	-0.635	0.038	0.06	0.378	0.055	0.013	-0.840	-0.231*	-0.020
	(-0.49)	(0.86)	(0.63)	(0.45)	(0.54)	(0.45)	(-0.74)	(-2.04)	(-0.83)
Ln(DollarVolume)	-0.575**	0.021	0.031	-0.346**	-0.005	0.001	-0.310*	-0.026	-0.215
	(-2.69)	(1.88)	(0.63)	(-2.75)	(-0.18)	(0.09)	(-2.39)	(-0.90)	(-0.72)
Govindex	9.157	0.428		8.947	0.668		9.037	1.392	
	(1.41)	(1.07)		(1.76)	(0.76)		(1.78)	(1.57)	
Leverage		-0.024			-0.603***			0.052	
		(-0.43)			(-4.16)			(0.57)	
Ln(Assets)		-0.002	-0.009		-0.023	-0.015***		0.019	0.073
		(-0.42)	(-0.83)		(-1.38)	(-3.99)		(1.00)	(0.96)
Intercept	9.027	-0.175	-0.090	11.350**	1.071	0.420**	4.974	-0.777	-4.782
	(1.52)	(-0.88)	(-0.12)	(2.88)	(1.88)	(3.29)	(0.70)	(-1.18)	(-0.98)
R^2	0.179	0.239	-4.697	0.499	0.261	0.143	0.505	-0.287	-970.089
Number of Observations	322	322	322	322	322	322	322	322	322
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Largest shareholders are: *Large_Company; Large_CompanyForeign; Large_Institution*; *Large_InstitutionForeign; Large_Government*. Second largest shareholders are: *Second_Company*; *Second_CompanyForeign*; *Second_Government; Second_Institution*; *Second_InstitutionForeign*. The liquidity measures are: *Spread* is[ask-bid/(ask+bid)/2]*100; *Turnover* is volume/shares outstanding. *Size* is the closing share price times number of shares outstanding at year end; *Volatility* is the standard deviation of the stock daily return during the year; *Govindex* includes 28 governance standards as outlined in appendix 3; *Ln(Assets)* is the firm's assets in U.S. dollars; *Leverage* is total debt/total assets; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *Board_Size* is the total number of directors on the board; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

Table 6. Simultaneous equation estimation — 3SLS – Panel C

	Spread	*Second_ Family*	*Govindex*	*Spread*	*Second_ Company*	*Govindex*	*Spread*	*Second_ CompanyForeig*	*Govindex*
		(1)			(2)			(3)	
Spread		0.029	-0.009		-0.015	-0.006		-0.056*	0.004
		(1.34)	(-0.84)		(-0.43)	(-0.49)		(-2.07)	(0.22)
Second_Family	-6.380		0.158						
	(-0.91)		(0.74)						
Second_Company				5.596		-0.212			
				(1.76)		(-0.72)			
Second_CompanyForeign							-4.989		0.138
							(-1.63)		(0.85)
Blockholdings	3.255*	-0.285**	0.006	3.061*	0.191	-0.004	4.846***	0.339*	-0.082
	(2.14)	(-2.84)	(0.10)	(2.27)	(1.13)	(-0.07)	(3.76)	(2.56)	(-0.93)
Ln(Size)	-0.891**			-0.671**			-0.550*		
	(-2.94)			(-3.18)			(-2.50)		
Cross_Listing	-0.055	-0.054	0.053*	0.227	0.052	0.055*	0.053	-0.023	0.044**
	(-0.07)	(-1.29)	(2.33)	(0.36)	(0.73)	(1.98)	(0.08)	(-0.42)	(2.67)
Volatility	0.065	0.007	-0.006	0.115	-0.029	-0.011	0.095	0.014	-0.007
	(0.18)	(0.31)	(-0.50)	(0.32)	(-0.78)	(-0.63)	(0.28)	(0.49)	(-0.60)
Average_Price	-0.123	-0.616	0.048	-0.159	0.337***	0.650	-0.465	-0.156*	0.161
	(-0.01)	(-1.11)	(0.16)	(-1.20)	(3.61)	(0.64)	(-0.50)	(-2.14)	(0.46)
Ln(DollarVolume)	-0.496***	0.019	-0.008	-0.484***	-0.017	-0.008	-0.501***	-0.024	-0.002
	(-3.52)	(1.11)	(-1.00)	(-3.53)	(-0.59)	(-0.83)	(-3.86)	(-1.08)	(-0.14)
Govindex	7.598	-0.988*		1.008	0.878		7.444	-0.492	
	(1.11)	(-2.06)		(0.14)	(1.11)		(1.18)	(-0.80)	
Ln(Board_Size)			0.017***			0.017***			0.015***
			(3.88)			(3.67)			(4.47)
Leverage		0.207**			-0.206			0.265**	
		(2.67)			(-1.63)			(2.64)	
Ln(Assets)		-0.012	-0.009*		-0.029*	-0.015		-0.009	-0.009*
		(-1.30)	(-2.11)		(-1.98)	(-1.34)		(-1.09)	(-2.04)
Intercept	26.150***	0.106	0.325*	18.920***	0.215	0.346*	14.430***	0.486	0.247
	(5.17)	(0.31)	(2.20)	(5.15)	(0.38)	(1.98)	(3.95)	(1.21)	(1.24)
R^2	0.492	0.110	0.255	0.519	0.321	0.091	0.562	-0.130	0.364
Number of Observations	290	290	290	290	290	290	290	290	290
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Largest shareholders are: *Large_Company; Large_CompanyForeign; Large_Institution*; *Large_InstitutionForeign; Large_Government*. Second largest shareholders are: *Second_Company*; *Second_CompanyForeign*; *Second_Government; Second_Institution*; *Second_InstitutionForeign*. The liquidity measures are: *Spread* is[ask-bid/(ask+bid)/2]*100; *Turnover* is volume/shares outstanding. *Size* is the closing share price times number of shares outstanding at year end; *Volatility* is the standard deviation of the stock daily return during the year; *Govindex* includes 28 governance standards as outlined in appendix 3; *Ln(Assets)* is the firm's assets in U.S. dollars; *Leverage* is total debt/total assets; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *Board_Size* is the total number of directors on the board; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

Table 6. Simultaneous equation estimation — 3SLS – Panel D

	Spread	*Second_ Government*	*Govindex*	*Spread*	*Second_ Institution*	*Govindex*	*Spread*	*Second_ Institution Foreign*	*Govindex*
	(4)			(5)			(6)		
Spread		0.038	-0.079		0.103	-0.107		-0.105*	-0.029*
		(1.37)	(-1.18)		(1.64)	(-0.08)		(-2.55)	(-2.17)
Second_ Government	0.055		2.249						
	(0.01)		(1.06)						
Second_Institution				11,000		0.714			
				(0.78)		(0.07)			
Second_ InstitutionForeign							-2.271		-0.252
							(-0.65)		(-1.86)
Blockholdings	3.995*	0.140	-0.192	7.065	-0.693*	0.464	3.601**	0.305	0.0326
	(2.22)	(1.06)	(-0.91)	(1.52)	(-2.23)	(0.07)	(2.77)	(1.57)	(0.63)
Ln(Size)	-0.697***			0.0942			-0.492		
	(-3.40)			(0.09)			(-1.33)		
Cross_Listing	0.342	-0.195***	0.319	-0.783	0.067	0.076	0.687	0.162*	0.086**
	(0.31)	(-3.53)	(1.22)	(-0.41)	(0.53)	(0.19)	(0.86)	(1.99)	(3.05)
Volatility	-0.023	-0.019	0.056	-0.516	0.047	-0.051	-0.093	-0.024	-0.010
	(-0.06)	(-0.66)	(0.92)	(-0.55)	(0.68)	(-0.08)	(-0.27)	(-0.57)	(-0.89)
Average_Price	0.122	0.165*	-0.347	0.356	-0.329	0.230	0.109	0.017	0.003
	(0.10)	(2.27)	(-1.07)	(0.75)	(-1.90)	(0.07)	(0.13)	(0.17)	(0.10)
Ln(DollarVolume)	-0.514***	0.029	-0.054	-1.040	0.101	-0.097	-0.643**	-0.110***	-0.032*
	(-3.83)	(1.30)	(-1.23)	(-1.43)	(1.95)	(-0.08)	(-2.74)	(-3.33)	(-2.32)
Govindex	6.778	1.910**		25,250	-2.435		4.596	0.616	
	(0.67)	(3.04)		(0.93)	(-1.70)		(0.66)	(0.71)	
Ln(Board_Size)			-0.047			0.031			0.018***
			(-0.80)			(0.10)			(4.60)
Leverage		-0.070			0.023			-0.051	
		(-0.70)			(0.10)			(-0.55)	
Ln(Assets)		0.021	-0.023		0.002			0.027	-0.003
		(1.76)	(-1.27)		(0.01)			(1.51)	(-0.66)
Intercept	16.900***	-0.974*	1.379	-4.776	0.226	1.212	15.780***	1.044	0.582**
	(5.15)	(-2.17)	(1.35)	(-0.17)	(0.26)	(0.15)	(4.34)	(1.58)	(3.26)
R^2	0,604	0,061	-16,854	-0,961	-0,640	-14,391	0,593	-1,401	-0,212
Number of Observations	290	290	290	290	290	290	290	290	290
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Largest shareholders are: *Large_Company; Large_CompanyForeign; Large_Institution*; *Large_InstitutionForeign; Large_Government*. Second largest shareholders are: *Second_Company*; *Second_CompanyForeign*; *Second_Government; Second_Institution*; *Second_InstitutionForeign*. The liquidity measures are: *Spread* is[ask-bid/(ask+bid)/2]*100; *Turnover* is volume/shares outstanding. *Size* is the closing share price times number of shares outstanding at year end; *Volatility* is the standard deviation of the stock daily return during the year; *Govindex* includes 28 governance standards as outlined in appendix 3; *Ln(Assets)* is the firm's assets in U.S. dollars; *Leverage* is total debt/total assets; *Cross-Listing* =1 if the company is cross-listed, otherwise 0; *Average_Price* is the average daily closing prices during the year for each year 2005-2011; *Board_Size* is the total number of directors on the board; *DollarVolume* is the total daily dollar volume during the year for each year 2005-2011,where daily dollar volume = volume*closing price. T-values reported in parentheses.

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Appendix A

Board related minimally acceptable corporate governance standards, based on ISS Corporate Governance Best Practices User Guide and Glossary, 2003

Audit
Audit committee consists solely of Independent outside directors.
Board
CEO serves on no more than two additional boards of other public companies.
All directors attend at least 75% of board meetings or had valid excuses for non- attendance.
Size of board of directors is at least 6 but not more than 15 members.
No former CEO serves on board.
CEO is not listed as having a 'related party transaction' in proxy statement.
Board is controlled by more than 50% independent outside directors.
Compensation Committee is comprised solely of independent outside directors.
The CEO and Chairman duties are separated or a lead director is specified.
Shareholders vote on directors selected to fill vacancies.
Board members are elected annually.
Nominating committee is comprised solely of independent outside directors.
Governance committee meets at least once during the year.
Shareholders have cumulative voting rights to elect directors.
Board guidelines are disclosed publicly.
Policy exists requiring outside directors to serve on no more than four additional boards.
Director Education
At least one member of board has participated in ISS-accredited director education.
Executive and director compensation
No interlocks exist among directors on the compensation committee.
Directors receive all or a portion of their fees in stock.
Ownership
All directors with more than one year service own stock.
Officers' and directors' stock ownership is at least 1% but not more than 30% of shares outstanding.
Directors are subject to stock ownership guidelines.
Progressive practices
Mandatory retirement age for directors.
Performance of board is reviewed regularly.
A board-approved CEO succession plan is in place.
Board has outside advisors.
Outside directors meet without the CEO and disclose the number of times they met.
Director term limit exist.