

Ownership Dispersion and Liquidity: Evidence from Thailand

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Abstract

This paper examines the relationship between ownership dispersion and stock liquidity of Thai listed companies over the period 2011-2015. The results indicate narrower bid-ask spreads, lower Amihud's illiquidity ratio, and higher liquidity ratio when firms have higher free float or larger number of shareholders. Thus, the findings reveal that ownership dispersion has a positive effect on liquidity. The same results are obtained when the data is estimated by the Two-Stage Least Squares (2SLS) to control endogeneity problem. The findings have important implications for policymakers and managers to enhance stock liquidity through increased ownership dispersion.

Keywords: Liquidity, Ownership Dispersion, Bid-Ask Spreads

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การกระจายการถือหุ้นและสภาพคล่อง: หลักฐานจากประเทศไทย

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บทคัดย่อ

งานวิจัยนี้ทำการศึกษาความสัมพันธ์ระหว่างการกระจายการถือหุ้นและสภาพคล่องของหุ้นของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยในช่วงปี ค.ศ. 2011-2015 ซึ่งผลการศึกษาแสดงให้เห็นว่า ระยะห่างระหว่างราคาเสนอซื้อและเสนอขายแคบลง อัตราส่วนความไร้สภาพคล่องของ Amihud ลดลง และอัตราส่วนสภาพคล่องสูงขึ้น เมื่อบริษัทมีการกระจายการถือหุ้นโดยผู้ถือหุ้นรายย่อย (Free Float) และจำนวนผู้ถือหุ้นมากขึ้น ดังนั้น ผลการศึกษาแสดงว่าการกระจายการถือหุ้นมีผลเชิงบวกต่อสภาพคล่องของหุ้น ผลการศึกษายังคงเดิมเมื่อทำการวิเคราะห์ด้วยวิธีกำลังสองน้อยที่สุดสองชั้นเพื่อควบคุมปัญหา Endogeneity ข้อค้นพบจากงานวิจัยนี้มีนัยสำคัญสำหรับผู้กำหนดนโยบายและผู้บริหารในการเพิ่มสภาพคล่องของหุ้นด้วยการเพิ่มการกระจายการถือหุ้น

คำสำคัญ: สภาพคล่อง การกระจายการถือหุ้น ระยะห่างระหว่างราคาเสนอซื้อและเสนอขาย

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1. Introduction

How ownership concentration affects stock liquidity is an issue that has received much attention in finance literature. Previous studies investigating the impact of ownership concentration on liquidity, however, have provided mixed results. For example, Kini and Mian (1995) find no significant relationship between block ownership and liquidity whereas Heflin and Shaw (2000), Rubin (2007), and Brockman, Chung, and Yan (2009) document a negative impact of block ownership on liquidity.

This paper aims to shed some light on the inconclusive evidence regarding this issue by exploring the relationship between ownership dispersion and liquidity in an emerging country, namely, Thailand. The motivations for conducting this research are as follows. Firstly, most prior research has focused on examining the impact of block ownership on liquidity while a relatively few studies to date have examined the link between ownership dispersion and liquidity (for example, Booth and Chua, 1996; Chan, Chan, and Fong, 2004; Zheng and Li, 2008; and Jacoby and Zheng, 2010). As pointed out by Jacoby and Zheng (2010), block ownership is just one dimension of ownership concentration. In particular, they find that ownership dispersion is positively related to liquidity.

Secondly, most previous studies have employed the data from developed countries. Hence, the findings regarding the relationship between ownership dispersion and liquidity may not be applicable to emerging countries where the market characteristics are dramatically different and the research in this area has been unexplored. Thirdly, the Thai capital market is an interesting setting in which to examine this empirical issue as its market structure is dramatically different from that in the U.S. and most other developed markets. As documented by prior studies, ownership structure of Thai firms is highly concentrated with inactive trading of shares (Claessens, Djankov, and Lang, 2000; Wiwattanakantang, 2001; Aivazian, Booth, and Cleary, 2003; and Limpaphayom and Ngamwutikul, 2004). Compared to developed countries, Thailand is a younger, smaller, less sophisticated country and its stock market appears to be more volatile and substantially less liquid.

These characteristics can have a negative impact on market liquidity. According to Rhee and Wang (2009), the lack of liquidity is a key determinant for high volatility in emerging markets and can impede stock market development. Moreover, investors tend to consider liquidity as a critical factor when making investment in emerging markets because their returns can be substantially reduced after accounting for liquidity cost (Bekaert, Harvey, and Lundblad, 2007; Agudelo, 2010). Despite the importance of stock liquidity for emerging markets, little investigation into such topic has been undertaken in an emerging country such as Thailand (see, for example, Pavabutr and Prangwattananon, 2009; Pavabutr and Sirodom, 2010; Udomsirikul, Jumreornvong, and Jiraporn, 2011; Prommin, Jumreornvong, and Jiraporn, 2014; and Thanatawee, 2016). To the best of the author's knowledge, this is the first paper that directly examines the impact of ownership dispersion on liquidity in Thailand.

This paper contributes to existing finance literature in the following ways. Firstly, whereas most earlier studies in this area examine the impact of block ownership on liquidity, this paper directly explores the link between ownership dispersion and liquidity. Secondly, the findings of this paper shed some light on the debate regarding the impact of ownership concentration on liquidity by showing that ownership dispersion has a positive impact on market liquidity. Thirdly, much of previous works done on the impact of ownership concentration on liquidity have been carried out using the data drawn from developed markets while the data from emerging markets have rarely been investigated. Therefore, this study addresses such scarcity by examining the impact of ownership dispersion on liquidity in an emerging economy such as Thailand.

The remainder of this paper proceeds as follows. Section 2 reviews theoretical background and related literature. Section 3 presents the data description and definitions of variables. Section 4 reports the empirical results. Section 5 concludes the paper.

2. Literature Review

There are two main theories explaining why ownership concentration has a negative impact on stock liquidity: the information asymmetry hypothesis and the trading hypothesis. According to the information asymmetry hypothesis, insiders are better informed about their companies than outside investors. Knowing that they are at disadvantage, liquidity providers are less willing to trade against insiders, leading to a decline in liquidity (Grossman and Stiglitz, 1980; Glosten and Milgrom, 1985; Kyle, 1985; Easley and O'hara, 1987). Trading hypothesis, on the other hand, posits that higher turnover of portfolios can help reduce transaction costs and enhance liquidity (Demsetz, 1968; Merton, 1987; Stoll, 2000). In addition, some studies such as Booth and Chua (1996), Bolton and Thadden (1998), and Zheng and Li (2008) suggest that market makers have an incentive to quote narrower spreads and larger depths because larger number of shareholders helps lower probability of informed trading. When the ownership is highly concentrated, however, there are fewer trades due to lower number of shareholders, thereby decreasing liquidity (Heflin and Shaw, 2000; Chan et al., 2004; Rubin, 2007; Jacoby and Zheng, 2010).

Prior empirical relationship between ownership concentration and liquidity is still inconclusive. Kini and Mian (1995) investigate a sample of 1,063 firms listed on the New York Stock Exchange (NYSE) in 1985 but find insignificant relationship between blockholdings and liquidity. In contrast, several studies document a negative impact of ownership concentration on market liquidity. Examining a sample of 259 firms listed on the NYSE and one firm listed on the American Stock Exchange (AMEX) in 1998, Heflin and Shaw (2000) document that block ownership has a detrimental effect on stock liquidity. In particular, they find that block ownership is positively related to bid-ask spreads and negatively related to depths. Rubin (2007) examine a sample of 1,369 firms listed on the NYSE in 1998 and finds that ownership concentration by institutional investors has a negative effect on market liquidity, suggesting that market makers are less willing to trade with informed traders. However, his findings show that the level of institutional ownership is positively related to liquidity, suggesting that institutional investors trade more

often than other investors. Examining 1,225 firms traded in the NYSE and AMEX over a 6-year period from 1996 to 2001, Brockman et al. (2009) find that block ownership impairs liquidity primarily through the reduced trading activity rather than the increased information asymmetry between blockholders and market makers. Specifically, they do not find any adverse effect of block ownership on spreads, depths, adverse selection, or price impact after controlling for the reduced trading activity.

Jacoby and Zheng (2010) subsequently examine a large sample of 3,576 firms in 1995 (1,071 firms listed on the NYSE, 2,182 firms listed on NASDAQ, and 323 firms listed on AMEX). In accordance with findings by Heflin and Shaw (2000), their results indicate that block ownership leads to wider bid-ask spreads and narrower depths, thus decreasing liquidity. Additionally, Jacoby and Zheng (2010) find that the number of shareholders, a proxy for ownership dispersion, is negatively related to bid-ask spreads and positively related to depths. Overall, their results reveal that dispersed ownership has beneficial impact on liquidity through higher trading activity.

Some studies also document the positive association between ownership dispersion and aftermarket liquidity of initial of public offerings (IPOs). In a seminal paper, Booth and Chua (1996) develop a model explaining how the issuer's demand for ownership dispersion motivates underpricing and oversubscription. The model shows that oversubscription for a new issue induces broad initial ownership dispersion, which in turn increase secondary-market liquidity of IPO shares. Their empirical results from an examination of IPOs from 1977 to 1988 also reveal that ownership dispersion has a positive impact on aftermarket liquidity. Similarly, Pham, Kalev, and Steen (2003) investigate 113 IPOs in Australian market and find that aftermarket liquidity is positively influenced by the breadth of shareholder base. Examining a sample of 1,179 IPOs listed on NASDAQ from 1993 to 2000, Zheng and Li (2008) find evidence that the number of non-block institutional shareholders is positively related to aftermarket liquidity but the number of shareholders is not significantly related to different liquidity measures. In addition, they document that ownership concentration has a negative effect on aftermarket liquidity of IPO shares.

While prior studies examining the relationship between ownership concentration (or dispersion) and liquidity, are replete with evidence from the U.S. and other developed countries, a relatively few studies in this area have been conducted using the data from emerging countries, especially from an emerging market like Thailand. Indeed, there is a scant research related to the liquidity of Thai firms. For example, Pavabutr and Prangwattananon (2009) explore the impact of tick size reduction on liquidity. They find that tick size reduction on the SET is associated with narrower spreads but shallower depths. Pavabutr and Sirodom (2010) investigate the impact of stock splits on liquidity and document that stock splits help improve liquidity by decreasing bid-ask spreads and price impact while increasing depths. Udomsirikul et al. (2011) examine the relationship between liquidity and capital structure. They report that Thai firms with higher stock liquidity have lower financial leverage. Prommin et al. (2014) examine the effect of corporate governance on liquidity and find that corporate governance has a significantly positive impact on stock liquidity. In a recent study, Prommin, Jumreornvong, Jiraporn, and Tong (2016) examine the relationship between ownership concentration and liquidity. They document that ownership concentration has a negative effect on liquidity.

To measure stock liquidity in Thailand, this paper used bid-ask spread and Amihud's illiquidity ratio. These two measures are among the most widely employed by researchers to measure illiquidity of trades. According to Amihud and Mendelson (2008), liquidity is the capacity of assets to be traded quickly at low cost. Therefore, the wider bid-ask spread, the lower probability of stock to be traded. Using bid-ask spread as a proxy for illiquidity, Amihud and Mendelson (1986) find that investors demand additional a return premium to compensate for holding illiquid stocks. Several studies (e.g., Heflin and Shaw; 2000; Rubin, 2007; and Brockman et al., 2009) document that ownership concentration is associated with wider bid-ask spreads. Another popular measure of stock illiquidity is illiquidity ratio subsequently developed by Amihud (2002). Essentially, this ratio measures the daily price response associated with one dollar trading volume or the price impact of trades. Examining

NYSE stocks during 1964-1997, Amihud (2002) find that illiquidity ratio is positively related to expected return. It is also indicated by Lesmond (2005) that Amihud's illiquidity ratio is a good proxy for illiquidity of stocks in emerging markets. Using a sample of largest firms in Thailand from 2006 to 2009, Prommin et al. (2016) find that ownership concentration is positively related to Amihud's illiquidity ratio.

In addition, liquidity ratio is used as a proxy for liquidity in this study. According to Amihud, Mendelson, and Lauterbach (1997), liquidity ratio, or the Amivest ratio, measures the trading volume associated with a unit change in the stock price. Liquidity ratio shows ability of a stock to absorb trading volume without significant price change. Thus, a higher liquidity ratio implies higher stock liquidity. Using liquidity ratio as a liquidity measure, Amihud et al. (1997) find that liquidity of stocks on the Tel Aviv Stock Exchange significantly increases following the transfer to the new trading method. Investigating a sample of largest firms in Thailand from 2006 to 2009, Prommin et al. (2014) find that a rise in corporate governance quality leads to higher liquidity ratio. In a recent study, Prommin et al. (2016) document that higher ownership concentration is associated with lower liquidity ratio.

In this study, the impact of ownership dispersion on liquidity is investigated by considering two dimensions of ownership dispersion. The first dimension is free float. Since free float is the proportion of shares not held by controlling shareholders or blockholders, it can be expected that a firm with higher free float has higher liquidity. Chan et al. (2004) use free float as a proxy for ownership dispersion and find that free float has a positive and significant effect on stock liquidity.

However, it is possible that a firm with high free float may have a few number of shareholders, leading to lower number of trades and lower liquidity (Zheng and Li, 2008). Consequently, this study considers the number of shareholders as the second dimension of ownership dispersion. Jacoby and Zheng (2010) employ the number of shareholders as a proxy for ownership dispersion and document a positive relationship between number of shareholders and stock liquidity.

Based on above discussions, it is reasonable to expect that ownership dispersion is beneficial to stock liquidity. Accordingly, the following hypotheses are proposed:

H1: Higher free float is associated with higher liquidity.

H2: Higher number of shareholders is associated with higher liquidity.

3. Data and Methodology

3.1 Sample

This study analyses a sample of the companies listed in the Stock Exchange of Thailand (SET) over a period of 5 years from 2011 to 2015. To construct a balanced panel dataset, the firms must be listed in the SET for every year of the sample period. The data for liquidity, ownership dispersion, and control variables are obtained from SETSMART, the financial database of the SET. The initial sample consists of 418 firms and 2,090 firm-year observations. After firms with missing trading data and outliers have been removed, the final sample consists of 340 firms and 1,700 firm-year observations.

3.2 Liquidity Measures

This paper measures stock liquidity by three alternative measures. The calculation of each liquidity measure is discussed below.

3.2.1 Relative Spread

Relative spread (RSPREAD) is calculated as the difference between the ask price and the bid price at the end of the day¹, divided by the average of two prices. This liquidity measure is commonly used by prior studies (for example, Ginglinger and Hamon, 2007; Rhee and Wang, 2009; and Jacoby and Zheng, 2010). Relative spread is a measure of illiquidity since wider bid-ask spread reduces the probability of trades.

$$\text{RSPREAD}_{i,d} = \frac{(\text{Ask}_{i,d} - \text{Bid}_{i,d})}{(\text{Ask}_{i,d} + \text{Bid}_{i,d})/2} \quad (1)$$

¹ This paper measures bid-ask spreads at the end of the day because there is no intraday data from SETSMART. This approach is employed by Gorkittisunthorn et al. (2006) for the Thai stock market and Rhee and Wang (2009) for the Indonesian stock market.

where $Ask_{i,d}$ and $Bid_{i,d}$ are the best ask and bid prices of stock i , respectively, at the end of trading day d . The daily relative spread is averaged over the year to construct the annual relative spread of stock i .

3.2.2 Amihud's Illiquidity Ratio

Amihud's illiquidity ratio (ILLIQ) is calculated as the daily absolute return over the daily trading value. This illiquidity ratio was initially developed by Amihud (2002) and later widely employed by many other researchers such as Jiang, Kim, and Zhou (2011), Udomsirikul et al. (2011), and Prommin et al. (2016).

$$ILLIQ_{i,d} = |R_{i,d}| / V_{i,d} \quad (2)$$

where $|R_{i,d}|$ is the absolute return of stock i on day d , $V_{i,d}$ is the trading value of stock i on day d (Million Baht). The daily illiquidity ratio is averaged over the year to construct the annual illiquidity ratio of stock i .

3.2.3 Liquidity Ratio

Liquidity ratio (LR) is computed as the daily trading volume over the absolute of stock return. According to Prommin et al. (2014), liquidity ratio can be used as a measure of ability of a stock to absorb a large amount of trading volume without significant price change. It is employed by prior studies (for example, Amihud et al., 1997; Berkman and Eleswarapu, 1998; and Prommin et al., 2014) as a proxy for stock liquidity.

$$LR_{i,t} = \sum_t \{VOL_{i,d}\} / (\sum_t \{|R_{i,d}|\}) \quad (3)$$

where $VOL_{i,d}$ is the trading volume of stock i on day d , $|R_{i,d}|$ is the absolute return of stock i on day d . Note that LR is the sum of daily trading volume over the year divided by the sum of daily absolute return over the year rather than the sum of daily LR, which cannot be calculated if the absolute return of stock i on day d is zero.

3.3 Ownership Dispersion

This study employs two measures for ownership dispersion. The first measure is free float (FF), the percentage of listed shares not owned by strategic investors such as governments, corporations, controlling shareholders, board members, and managers. Therefore, it is the portion of shares that is freely traded on the stock market. Free float is employed by Chan et al. (2004) as a proxy for ownership dispersion. They find that free float has a positive and significant effect on stock liquidity. The second measure is the number of shareholders (HOLDER) as employed by Jacoby and Zheng (2010) who document a positive relationship between number of shareholders and stock liquidity.

3.4 Control Variables

This paper includes three control variables that have been used by prior studies (for example, Ginglinger and Hamon, 2007; Rhee and Wang, 2009; Jacoby and Zheng, 2010; Chung, Elder, and Kim, 2010; and Jiang et al., 2011). These variables are share price (PRICE), return volatility (VOLAT), and market capitalisation (MCAP). Share price is used to capture the extent that higher share price tends to have wider bid-ask spreads. Daily closing share prices are averaged over the year. Return volatility, the standard deviation of daily returns over the year, is included because more volatile stock tends to have wider bid-ask spreads and higher price impact. Note that return volatility for any stock is the same in any given year since it is the annual standard deviation of daily returns. Market capitalisation is included to control for the effect of firm size on liquidity since larger firms tend to have higher stock liquidity than smaller ones. Daily market capitalisations are averaged over the year. In addition, year dummies and industry dummies are included to control for macroeconomic variations and possible industry effects, respectively. There are eight industries as classified by the SET, that is, agriculture and food, consumer products, financials, industrials, property and construction, resources, services, and technology.

4. Empirical Results

4.1 Descriptive Statistics

Table 1 shows the descriptive statistics for the sample. It shows that the liquidity measures of this study, i.e., relative spread (RSPREAD), Amihud's illiquidity ratio (ILLIQ), and liquidity ratio (LR) take the average values of 1.5 per cent, 44.230, and 3.155, respectively. With regard to the ownership dispersion variables, the mean value of free float (FF) is 39.91 per cent and the mean number of shareholders (HOLDER) is 4,797.48. For the control variables, the mean values of daily closing share price (PRICE), return volatility (VOLAT), and market capitalisation (MCAP) are 29.679 Baht, 2.565, and 14,337 Million Baht, respectively.

Table 1 Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
RSPREAD	0.015	0.009	0.002	0.144	0.016
ILLIQ	44.230	0.980	0.001	1,894.623	151.581
LR	3.155	0.734	0.000	71.704	7.589
FF	39.910	37.040	4.230	100.000	17.128
HOLDER	4,797.48	2,185	249	112,659	9,361.513
PRICE	29.679	10.681	0.133	440.416	53.379
VOLAT	2.565	2.282	0.052	10.896	1.229
MCAP	14,337	3,311	69.34	306,842	34,313

RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. HOLDER is the number of shareholders. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht).

4.2 Univariate Tests of Liquidity Differences

Table 2 reports the results from univariate tests of differences in liquidity when the sample is subdivided into two groups by the median values of independent variables. The results show that firms with higher FF have higher liquidity as indicated by significantly smaller RSPREAD, lower ILLIQ, and higher LR. The same results are obtained when the sample is divided by the median value of HOLDER. That is, RSPREAD and ILLIQ are lower while LR is higher for firms with higher HOLDER. These findings reveal that firms with higher ownership dispersion have higher liquidity.

In addition, the results suggest that firms with higher PRICE tend to have lower liquidity as indicated by significantly higher RSPREAD and lower LR (However, there is no significant difference in ILLIQ between both groups). Table 2 also demonstrates that firms with higher VOLAT have lower liquidity as shown by significantly higher RSPREAD, higher ILLIQ, and lower LR. Further, the evidence indicates that firms with higher MCAP have higher liquidity as shown by significantly lower RSPREAD, lower ILLIQ, and higher LR.

Table 2 Univariate Tests of Liquidity Differences

Independent variables	RSPREAD			ILLIQ			LR		
	High	Low	Diff.	High	Low	Diff.	High	Low	Diff.
FF	0.011	0.018	-0.007*** (-9.300)	13.847	74.613	-70.766*** (-8.433)	5.226	1.085	4.141*** (11.689)
HOLDER	0.009	0.021	-0.012*** (-16.835)	1.842	86.519	-84.677*** (-12.005)	5.472	0.844	4.629*** (13.200)
PRICE	0.018	0.012	0.006*** (7.472)	45.105	43.362	1.744 (0.237)	1.371	4.926	-3.555*** (-9.957)
VOLAT	0.019	0.010	0.009*** (12.525)	75.441	13.020	62.420*** (8.673)	2.152	4.159	-2.007*** (-5.500)
MCAP	0.009	0.020	-0.010*** (-14.197)	8.062	80.483	-72.421*** (-10.130)	4.529	1.778	2.752*** (7.606)

The sample is divided into high and low groups by the median values of independent variables. RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. HOLDER is the number of shareholders. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht). t-statistics are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

4.3 Correlation Matrix

Table 3 shows the correlation matrix of variables used in this study. It can be seen that both FF and HOLDER have significantly negative correlations with RSPREAD and ILLIQ, and significantly positive correlations with LR. These results suggest that firms with higher ownership dispersion have higher liquidity. The correlation matrix also indicates that higher stock price is associated with lower liquidity as shown by a significantly positive correlation between PRICE and RSPREAD and a significantly negative correlation between PRICE and LR. In addition, positive and significant correlations between VOLAT and RSPREAD and VOLAT and ILLIQ reveal that higher return volatility is associated with lower liquidity. Moreover, firms with higher market capitalisation appear to have higher liquidity as shown by significantly negative correlations between MCAP and RSPREAD and MCAP and ILLIQ, and a significantly positive correlation between MCAP and LR. Further, it can be observed that the correlations between any pair of independent variables lie between -0.7 and 0.7. According to Lind, Marchal, and Wathen (2010), the correlation coefficient between any pair of independent variables in the range between -0.7 and 0.7 indicates no collinearity problem in regression analysis.

Table 3 Correlation Matrix

Variable	RSPREAD	ILLIQ	LR	FF	HOLDER	PRICE	VOLAT	MCAP
RSPREAD	1							
ILLIQ	0.799***	1						
LR	-0.688***	-0.728***	1					
FF	-0.277***	-0.405***	0.437***	1				
HOLDER	-0.620***	-0.813***	0.701***	0.412***	1			
PRICE	0.061**	-0.019	-0.605***	-0.203***	-0.121***	1		
VOLAT	0.448***	0.210***	-0.014	0.017	-0.163***	-0.180***	1	
MCAP	-0.573***	-0.744***	0.367***	0.047	0.692***	0.361**	-0.303***	1

RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. HOLDER is the number of shareholders. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht). All variables are transformed by taking natural logarithm. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

4.4 Ownership Dispersion and Liquidity

The relationship between ownership dispersion and liquidity is firstly estimated by the panel least squares regressions. The results shown in Table 4 indicate that FF and HOLDER have negative and significant relationships with RSPREAD and ILLIQ. These findings indicate that higher ownership dispersion is associated with narrower spread and lower price impact, thus higher stock liquidity. In addition, the results show that FF and HOLDER have positive and significant relations with LR. These findings reveal that higher ownership dispersion is associated with higher ability of stock to absorb larger trading volume without significant price change. Therefore, the positive relationships of both proxies for ownership dispersion (FF and HOLDER) and all liquidity measures (RSPREAD, ILLIQ, and LR) are consistent with Hypotheses 1 and 2 formulated above. Taken together, the results from Table 4 reveal that ownership dispersion enhances stock liquidity.

Table 4 Panel Least Squares Regressions between Ownership Dispersion and Liquidity

	RSPREAD		ILLIQ		LR	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-2.388*** (-11.890)	-2.563*** (-13.635)	19.997*** (30.992)	18.398*** (28.434)	-12.500*** (-28.099)	-11.017*** (-25.645)
FF	-0.236*** (-6.409)		-2.026*** (-14.746)		1.398*** (15.519)	
HOLDER		-0.181*** (-6.213)		-1.524*** (-11.411)		0.946*** (10.459)
PRICE	0.093*** (4.242)	0.055*** (2.487)	0.315*** (6.039)	-0.005 (-0.068)	-1.383*** (-31.824)	1.195*** (-23.447)
VOLAT	0.486*** (8.511)	0.493*** (8.780)	0.105 (0.689)	0.144 (1.080)	0.248* (1.959)	0.223* (1.885)
MCAP	-0.205*** (-12.246)	-0.107*** (-4.790)	-1.521*** (-33.388)	-0.703*** (-7.617)	1.098*** (29.613)	0.594*** (8.945)
Adjusted R ²	58.48%	58.93%	74.85%	75.91%	84.35%	83.86%
N	1,700	1,700	1,700	1,700	1,700	1,700

RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. HOLDER is the number of shareholders. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht). All variables are transformed by taking natural logarithm. Year dummies and industry dummies are included in all specifications. *t*-statistics, adjusted for White heteroskedasticity-robust standard errors, are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

The data is further analysed using both fixed effects and random effects panel estimators. The fixed effects model is estimated to account for heterogeneity within firms. The random effects model is estimated to capture heterogeneity between firms. For the random effects estimator to be unbiased in a large sample, the effects must be uncorrelated with the explanatory variables, an assumption that is often violated (Hill, Griffiths, and Lim, 2012). In this regard, the Hausman tests can be carried out to test the null hypothesis of no correlation between random effects and explanatory variables. In the present dataset, the Hausman test results suggest preference for the fixed effects estimation. Therefore, to conserve space, the results for random effects estimations are not reported.

The results from the fixed effects estimations in Table 5 show that the coefficients on FF and HOLDER are negative and significant when using RSPREAD and ILLIQ as dependent variables, and they are positive and significant when using LR as dependent variable. These findings support Hypotheses 1 and 2 and consistent with results of Chan et al. (2004) and Jacoby and Zheng (2010) who document that ownership dispersion has a positive effect on stock liquidity.

Table 5 Panel Fixed Effects Regressions between Ownership Dispersion and Liquidity

	RSPREAD		ILLIQ		LR	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-1.716*** (-8.791)	-2.034*** (-11.675)	21.961*** (26.785)	20.795*** (28.807)	-11.831*** (-20.579)	-9.809*** (-18.798)
FF	-0.265*** (-6.662)		-1.918*** (-11.503)		1.183*** (10.116)	
HOLDER		-0.121*** (-5.711)		-1.119*** (-12.713)		0.419*** (6.578)
PRICE	-0.048*** (-2.648)	-0.069*** (-3.715)	-0.153*** (-2.034)	-0.360*** (-4.682)	-0.872*** (-16.495)	-0.802*** (-14.426)
VOLAT	0.265*** (12.943)	0.260*** (12.611)	0.272*** (3.157)	0.220*** (2.582)	0.382*** (6.329)	0.399*** (6.465)
MCAP	-0.228*** (-11.437)	-0.184*** (-8.467)	-1.758*** (-20.973)	-1.345*** (-14.880)	0.992*** (16.871)	0.848*** (12.979)
Adjusted R ²	86.80%	86.69%	90.00%	90.19%	93.94%	93.69%
N	1,700	1,700	1,700	1,700	1,700	1,700

RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. HOLDER is the number of shareholders. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht). All variables are transformed by taking natural logarithm. Year dummies are included in all specifications. t-statistics are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

4.5 Possible Endogeneity

In this section, a two-stage least squares (2SLS) is estimated to ensure that the regression results obtained in previous section are not susceptible to endogeneity problem. This paper employs two instrumental variables similar to those in Prommin et al. (2016). The first instrument is predicted FF. It is constructed by making a linear projection from each firm's free float in 2011 to the average free float of the sample in 2015. The second instrument is industry-median FF. The reason for using this variable as an instrument is that industry-level free float should be highly correlated with firm-level free float but firm-level liquidity is unlikely to be affected by industry-level free float.

Table 6 presents the 2SLS results. In the first stage, the dependent variable is FF. The results from Model (1) show that both instrumental variables are highly significant at 1% level, indicating that the instruments are not weak. In the second stage, the results show that the coefficients on FF are negative and significant in Models (2) and (3) with RSPREAD and ILLIQ as dependent variables, and positive and significant in Model (4) with LR as dependent variable. Consistent with the regression results, the 2SLS results demonstrate that higher free float is associated with higher liquidity. To check the validity of instrumental variables, the Sargan test of over-identifying restrictions is performed. Since the Sargan statistics are insignificant, both instruments are acceptable. Taken together, the 2SLS results are in line with the regression results in Tables 4 and 5, suggesting that the endogeneity problem is less likely to be a serious issue in this study.²

² Similar results are obtained when the 2SLS estimations are performed using predicted HOLDER and industry-median HOLDER as instrumental variables. The results are not shown for brevity but available upon request.

Table 6 2SLS Regressions between Ownership Dispersion and Liquidity

Dependent variable	First stage		Second stage	
	FF	RSPREAD	ILLIQ	LR
	(1)	(2)	(3)	(4)
Intercept	-3.265*** (-12.788)	-0.735 (-1.405)	26.219*** (11.923)	-11.803*** (-7.812)
Predicted FF	1.641*** (43.371)			
Industry-median FF	0.232*** (3.405)			
FF		-0.553*** (-3.744)	-3.168*** (-5.105)	1.175*** (2.755)
PRICE	-0.031*** (-5.320)	-0.052*** (-2.843)	-0.175** (-2.250)	-0.872*** (-16.355)
VOLAT	0.027 (1.480)	0.264*** (12.625)	0.266*** (3.023)	0.382*** (6.325)
MCAP	0.014** (2.322)	-0.221*** (-10.734)	-1.728*** (-19.926)	0.992*** (16.644)
Adjusted R ²	56.64%	86.29%	89.58%	93.94%
Sargan statistic		2.4874	0.0423	0.1505
p-value		0.1147	0.8370	0.6980
N	1,700	1,700	1,700	1,700

RSPREAD is the difference between the ask price and the bid price, divided by the average of two prices (%). ILLIQ is the ratio of the daily absolute return to the daily trading value in Million Baht. LR is the ratio of total daily trading volume to the total absolute value of stock return. FF is the percentage of free float shares. PRICE is the daily closing share price (Baht). VOLAT is the standard deviation of daily returns over the year. MCAP is the daily market capitalisation of stock (Million Baht). All variables are transformed by taking natural logarithm. Year dummies are included in all specifications. *t*-statistics are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

5. Conclusion

The empirical results regarding the effect of block ownership on liquidity are inconclusive. This paper aims to shed some light on the inconclusive evidence on this topic by investigating the relationship between ownership dispersion and liquidity in an emerging market, namely, Thailand over the period 2011-2015. The results from the panel least squares and fixed-effects estimations show that higher ownership dispersion (higher free float or larger number of shareholders) is associated with higher stock liquidity (i.e., narrower relative spreads, lower illiquidity ratio, and higher liquidity ratio). The same results are obtained when the data is estimated by 2SLS to control for endogeneity. Taken together, the findings of this paper reveal that higher ownership dispersion leads to higher liquidity.

The findings are broadly consistent with the trading hypothesis, which suggests that higher number of trades help reduce transaction costs and enhance liquidity (Demsetz, 1968; Merton, 1987; Stoll, 2000) and that market makers are more willing to quote narrower spreads and larger depths because larger number of shareholders helps lower probability of informed trading (Bolton and Thadden, 1998; Zheng and Li, 2008). The results are in line with those documented by prior studies such as Booth and Chua (1996), Chan et al. (2004), Zheng and Li (2008), Brockman et al. (2009) and Jacoby and Zheng (2010).

The findings of this paper have important implications regarding the link between ownership dispersion and liquidity in Thailand. For policymakers and managers, they should attempt to reduce information asymmetry and enhance liquidity by adopting measures to make ownership more dispersed (e.g., increase free float and number of shareholders). Nevertheless, increased ownership dispersion may have a limited effect on liquidity improvement for firms with large market capitalisations as the shares of these firms are normally widely held by investors. For investors, the information about the liquidity impact of ownership dispersion can help them make better decisions on investments in the Thai stock market.

Since the findings of this study may be applicable only to listed companies in Thailand, future research should try to extend the analysis to other emerging markets. Future studies may need to be carried out to examine the liquidity impact of other factors such as institutional ownership, family ownership, insider trading, trading by foreign investors, dividend policy, as well as capital structure.

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