

OWNERSHIP STRUCTURE AND BID-ASK SPREAD: EVIDENCE FROM TUNISIAN COMPANIES

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Abstract

The majority of previous studies are limited to study the aspects of the ownership structure within the framework of government of company without wondering about the incidence of this mechanism on the stock liquidity. The objective of this paper is to examine the relationship between ownership structure and market liquidity. From a sample of Tunisian firms listed in the period from 2001 to 2005. We showed that ownership concentration by blockholders is positively related to spread. A positive but generally insignificant relation is found between spreads and insider ownership. However, institutional ownership does not add any explicative power to the liquidity.

Keywords: ownership concentration, insiders, institutional, stock liquidity, bid-ask spread

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1. Introduction

During the past decades, considerable attention has been dedicated to examining the relation between the market microstructure and corporate governance. The reason is that ownership structure may not only impact performance, but also stock liquidity. Concentrated ownership could decrease the level of trading activity, thus reducing market liquidity and adversely affecting the ability of the investors to sell their shares (Holmstrom and Tirole (1993)). Bhidé (1993) and Coffee (1991) argue that a liquid market is an obstacle for effective governance. Heflin and Shaw (2000) investigate the relation between large block ownership and market liquidity for American firms. Sarin et al., (2000) examine the relation between stock liquidity and the fractional ownership of insiders and institutions. In recent studies on Australian firms, Comerton-Forde and Rydge (2006) find that the director holdings are positively related to illiquidity. In conclusion, ownership structure appears to be a vital factor that can significantly affect market liquidity.

Previous studies are undertaken for developed capital markets, in particular the US (Sarin et al., 2000; Heflin and Shaw, 2000; Rubin, 2007), Australia (Comerton-Forde and Rydge, 2006), Canada (Attig et al. 2006) and Norway (Naes, 2004) where the institutional environments differ greatly from that in Tunisia. This study is the first undertaken for Tunisian stock exchange to combine corporate governance research with market microstructure research by examining a link between a corporate governance

variable, ownership structure, and a market microstructure variable, bid-ask spread.

Using a sample of 19 Tunisian firms, we find evidence that the bid-ask spread is positively associated with large block. We fail to find evidence that the bid-ask spread is positively related to the proportion of the firm's stock owned by insiders.

While we predict negative effects of the stock price and trading volume on the bid-ask spread.

The remainder of the paper is organized as follows. Section 2 presents the literature review. Data and methodology are portrayed in section three. Empirical results are presented and discussed in section four. Finally, section five concludes the paper.

2. Literature review

Market microstructure theory predicts that the large individual owners have a negative effect on the liquidity, whereas the firms with much of small individual investors should have a high liquidity. The large owners have an information advantage relative to small owners.

Studies such as Heflin and Shaw (2000), Neas (2004) and Comerton-Forde and Rydge (2006) have all studied the relationship between block ownership and liquidity. These studies have found that the spreads is positively related to block ownership.

Holmstrom and Tirole (1993) derive a theoretical model for investigating the negative relationship between ownership concentration and market liquidity. The model suggests that the liquidity increased when the ownership by a large owner decreased.

Kothare (1997) argue that the presence of higher large shareholders reduce trading frequency, increase spread and reduce depth. Moreover, Becht (1999) examines the link between blockholdings and liquidity in Belgium and Germany. He finds that the voting power concentration through blocks has a negative effect on the liquidity. In Germany the liquidity cost is mitigated because blockholders deviate from one-share-one-vote. In Belgium, the liquidity is much reduced. On the other hand, Tobiasson et al. (1999) studied the relationship between liquidity and ownership structure in the Norwegian market. Their results show that the relation between the liquidity and the large owner is weak.

Using bid-ask spread as a measure of stock liquidity, Heflin and Shaw (2000) find that both relative and effective spreads are larger in the firm with higher blockholder ownership. Neas (2004) argue that the ownership concentration, measured by the aggregate holdings of the five largest owners, increases the spread. This result is in conformity with the theoretical predictions.

Comerton-Forde and Rydge (2006) report, on a sample of firm listed on the Australian Stock Exchange, a positive effect between ownership concentration and illiquidity.

Market microstructure theories argue that higher levels of insider ownership may increase the probability of informed trading and contribute to information asymmetry, leading to stock illiquidity. Insiders are shareholders who have access to privileged information about the firm, and who also have the power to make changes inside the firm. In this area, a large line of previous empirical studies has focused on the relationship between insider ownership and liquidity (Chiang and Venkaesh (1988); Kini and Mian (1995); Beny (1999); Sarin et al. (2000) and Dennis and Weston (2001); ect.).

Kini and Mian (1995), who examine whether ownership structure affects the specialist's choice of bid-ask spread on the NYSE, document a nonpositive relation between bid-ask spread and insider ownership.

Using a simultaneous equations approach, Sarin et al. (2000) find that insider ownership is positively related to bid-ask spreads and negatively related to quoted depth. But, Dennis and Weston (2001) find that spread is negatively related to the level of insider ownership.

The relation between liquidity and insider ownership in Norwegian market is studied in Neas (2004). A significant positive relationship is found between the spread measures and the holdings of the primary insiders. Primary insiders comprise company managers and members of the Board of Directors.

Rubin (2007) finds that insider's ownership of U.S firms is negatively associated with trade-based measures (volume and turnover), but positively associated with order-driven liquidity measures.

The predicted impact of institutional ownership on liquidity is not clear. On the one hand,

institutional investors obtain private information about the firm because they have resources to make any analyses on the firm. The market makers are brought to widen spreads. Thus, bid-ask spread would be wider for firms with higher institutional ownership. On the other hand, institutional investors are heterogeneous and hold diversified portfolios.

The link between the spreads and institutional ownership has been investigated by many studies. Some of them have found a positive relation between those two variables (Sarin et al., 2000); others have found a negative relation (Dennis and Weston, 2001; Falkenstein, 1996).

Kothare and Laux (1995) find that spread is positively correlated to institutional ownership, but they treat the institutional ownership as exogenous, although Jennings et al., (2000) argue that spreads and the information asymmetry component of spread decrease with institutional ownership.

Sarin et al. (2000) treat the ownership structure and the spread as endogenous and they find that the spread is positively associated to institutional ownership. These results contradict those obtained by Dennis and Weston (2001) and Falkenstein (1996).

Dennis and Weston (2001) find that the relative spread is negatively associated to the institutional ownership. They suggest that institutional investors prefer stocks with narrower spreads since they are more liquid. The results corroborate those obtained by Tinic (1972) and Hamilton (1978). These authors found a relation negative between the institutional ownership and spread for a sample of NYSE and NASDAQ stocks, respectively.

Rubin (2007) finds a two-sided relation between institutional ownership and liquidity. Liquidity is positively related with institutional ownership and negatively related with institutional concentration. In contrast, Neo shows there is not a monotonic relation between concentration of institutional ownership and liquidity.

Neas (2004) and Sharma (2005) find no significant relation for a sample of Norwegian and Indian stocks, respectively.

3. Data and methodology

3-1 Hypotheses development

Ownership concentration

The large blockholders have access to private information and consequently they acquire superior information about firm value thus potential benefits from blockholder monitoring might be partially compensate by reduced liquidity attributable to wider spreads (Heflin and Shaw, 2000). Consistent with this assumption, Comerton-Forde and Rydge (2006) documents a negative relation between ownership concentration and liquidity.

Thus, the following hypothesis is proposed:

Hypothesis 1: The bid-ask spread is positively related to the ownership concentration.

Insider ownership

Theory predicts a negative relationship between stock market liquidity and insider ownership. The insiders have access to privileged information about the firm, and they trade based on this information. Sarin et al. (2000) argue that the presence of insiders increase the probability of informed trading and the cost of transaction. Thus, this contributes to higher level of information asymmetry and reduces liquidity. Consistent with this argument, Sarin et al. (2000) find a positive relationship between the insider ownership and the bid ask spread.

Accordingly, our second hypothesis is:

Hypothesis 2: There is an inverse relationship between insider ownership and liquidity: If the level of inside ownership increases, spread increases.

Institutional ownership

With respect to institutional ownership, on one hand, institutional investors have an informational advantage about the firm because they have resources to obtain and analyze information. Accordingly, their increased shareholding should guide to wider bid-ask and higher adverse selection costs (Sarin et al, 2000). On the other hand, institutional investors can be seen as heterogeneous, and the investment strategy is to hold diversified portfolios. In this case, the bid-ask spread would be a decreasing function of institutional ownership. Consistent with this argument, Barabanov (2002) find a negative relationship between the institutional ownership and the bid-ask spread.

Our hypothesis therefore is:

Hypothesis 3: The bid-ask spread is negatively related to the institutional ownership.

3.2 Data

The developed countries (US, UK, Australia; ect.) have a relatively strong market for corporate control and relatively dispersed stock ownership (Laporta et al. 1999) while Tunisia has a weak market for corporate control and concentrated stock ownership.

The final sample includes 19 firms that are listed on the Tunisian Stock Exchange (TSE) during January 2001- December 2005.

Shareholding data used in this study was collected manually from three sources: from listed companies' annual reports available on the Tunisian Stock Exchange, from the leaflets of issue of shares and from financial statements published in the official bulletins of the Tunisian Stock Exchange (TSE). Trading data are obtained from the Tunisian Stock Exchange.

3.3 Variables description

In our analysis we use the relative bid-ask spread as liquidity measure. Similarly to Sarin et al. (2000), Heflin and Shaw (2000), Amihud (2002) and Attig, Fong, Lang and Gadhoun (2006), we defined relative

bid-ask spread % as the difference in ask and bid prices divided by the average of the bid and ask prices, is calculated for every quote.

The ownership structure of a firm in our sample is defined in terms of three variables: block ownership, insider ownership and institutional ownership.

Ownership by blockholders (BLC)

This variable refers to large bloc ownership; which is measured as the percentage of shares held by the large blockholder. (e.g. Heflin and Shaw (2000) and Earle, Kucsera and Telegdy, 2005)

Institutional Ownership (INST) is defined as the percentage of shares held by the institutional owners. In fact, we considered as institutional investors, the banks, the investment firms, the insurance companies, pension funds, and mutual funds. This variable is reported in Sarin et al. (2000), Dennis and Weston (2001) and Rubin (2007).

Insider Ownership (INSID) is defined as the percentage of the outstanding shares owned by officers, directors and all other investors who may be related to the management. This variable is also employed by Kothare (1997), Sarin et al. (2000) and Comerton-Forde and Rydge (2006).

The control variables

Ownership structure is not the only factor which can influence the liquidity. Stoll (1978) shows that spreads are negatively associated with trading volume and share price, and positively associated with returns volatility. In addition, Glosten and Harris (1988) suggest that spreads may be influenced by factors¹⁶ such as share price, trading volume, return volatility and firm size.

We use a number of control variables defined in the pervious literature to account for any effects of external factors in our analysis.

Share price (**PRICE**) is the average of closing daily price. Price levels can affect the liquidity of stock. Trading volume (**VOLUME**) is defined as total trading volume divided by of trading days. Return volatility¹⁷ (**RVOL**) is measured as the standard deviation of daily close-to-close returns.

Size firm¹⁸ (**SIZE**) is the natural log of the market value of the firm's equity, calculated at the end of each trading day and averaged over the year. We use logarithms of market capitalization values to reduce skewness. This variable was also used by Rubin (2007) and Comerton-Forde and Rydge (2006).

3.4 Empirical methodology

The methodology used within the framework of our empirical analysis is that of panels. It is a multiple form of regression, which makes it possible to jointly

¹⁶ Hanley, Kumar, and Seguin (1993)

¹⁷ Heflin and Shaw 2000

¹⁸ Demsetz (1986) and Chiang and Venkatesh (1988) show that firm size is a significant determinant of the bid-ask spread.

analyze the individual effects and the temporal effects. Indices i, t respectively represent the company and the period considered.

The econometrics of the data of panel makes it possible to highlight the heterogeneity of the observations in their individual dimensions by the taking into account of a fixed or random specific effect. Three tests make it possible to validate the specification of the model. The first is the test of presence of an individual effect, which consists in checking the existence of an individual effect. The second is the test of homogeneity of the coefficients that makes it possible to test the equality for all the companies and the third test is the test of Hausman, which is used to determine if it is necessary to resort to a model for fixed or random effect.

We separately study the effects of all detentions of the various groups of owner.

Our empirical tests are based on regression models that use bid-ask spread as the dependent variable.

First, we examine the negative relation between ownership concentration and liquidity. With this intention, we introduce into the regression the percentage of shares held by the large blockholder and the variables of control.

The model to be tested arises in the following way:

$$\text{SPREAD}_{it} = \beta_0 + \beta_1 \text{BLC}_{it} + \beta_2 \text{PRICE}_{it} + \beta_3 \text{VOLUME}_{it} + \beta_4 \text{RVOL}_{it} + \beta_5 \text{SIZE}_{it} + \mu_i + v_{it}$$

Where μ_i represents a firm-specific effect to be fixed or random, v_{it} is a standard residual term and $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the unknown parameters of the model.

To examine the effect insider ownership on the bid-ask spread, the following regression equation is used, with spread as the dependent variable:

$$\text{SPREAD}_{it} = \beta_0 + \beta_1 \text{INSD}_{it} + \beta_2 \text{PRICE}_{it} + \beta_3 \text{VOLUME}_{it} + \beta_4 \text{RVOL}_{it} + \beta_5 \text{SIZE}_{it} + \mu_i + v_{it}$$

Then, we will test the relation between ownership institutional and bid-ask spread. Within this framework, we introduce the percentage of the shares held by the institutional investors into the regression.

$$\text{SPREAD}_{it} = \beta_0 + \beta_1 \text{INSTI}_{it} + \beta_2 \text{PRICE}_{it} + \beta_3 \text{VOLUME}_{it} + \beta_4 \text{RVOL}_{it} + \beta_5 \text{SIZE}_{it} + \mu_i + v_{it}$$

Lastly, we include all ownership variables in the regression.

$$\text{SPREAD}_{it} = \beta_0 + \beta_1 \text{BLC}_{it} + \beta_2 \text{INSD}_{it} + \beta_3 \text{INSTI}_{it} + \beta_4 \text{PRICE}_{it} + \beta_5 \text{VOLUME}_{it} + \beta_6 \text{RVOL}_{it} + \beta_7 \text{SIZE}_{it} + \mu_i + v_{it}$$

4. Results

Table 1 presents the descriptive statistics concerning the variables retained in the analysis.

Table 1 reports descriptive statistics of the variables included in the regression analyses. The mean percentage bid-ask spread (SPREAD) is 2.25 percent whereas its standard deviation is 0.88 percent. Compared to the US (for example, Sarin et al. (2000) points out that a mean of 1.26 percent spread on a sample of 786 American firms). The mean proportion of shares held by large shareholders is 38.18 percent. The mean ownerships are 1.68 percent and 23.52 percent for insiders and institutional, respectively. The distribution of the documents of title between the shareholders of our sample shows that the structure of shareholding of these companies is very concentrated and that this concentration is ascribable to the large shareholder. This last holds, on average, 38.18%. Finally, the mean firm size of the companies composing the sample is 9.85 percent.

Table 1. Descriptive statistics for variables in regression analyses

Variables	Mean	Standard Deviation
Spread (SPREAD)	2.25	0.88
Blockholder ownership (BLC)	38.18	16.77
Institutional ownership (INST)	23.52	19.17
Insider ownership (INSID)	1.68	5.01
Share price (PRICE)	19.82	17.52
Trading volume (VOLUME)	7.05	1.06
Return volatility (RVOL)	0.024	0.069
Firm size (SIZE)	9.85	1.52

Notes: This table presents descriptive statistics for the variables used in the regression models. The sample consists of companies listed on the Tunisian stock exchange (BVMT) during 2001-2005. Trading data are obtained from the Tunisian stock exchange. The bid-ask spread (SPREAD) is define as the difference between ask and bid price divided by the average of the bid and ask price, calculated for each quote. Ownership by blockholders (BLC) is the percentage of shares held by the large shareholder. Insider ownership (INSIDER) is defined as the percentage of the outstanding shares held by the firm's insiders. Insiders are defined as officers, directors and all other investors who may be related to the management. Institutional ownership (INST) is defined as the percentage of shares held by the institutional. Price (PRICE) is the average of closing daily. Trading volume (VOLUME) is defined as total trading volume divided by of trading days. Return volatility (RVOL) is measured as the standard deviation of daily close-to-close returns. Size firm (SIZE) is the natural log of the market value of the firm's equity.

Regression Results

Table 2. Regression results – ownership structure and bid-ask spread

Independent variables	Dependent variable : SPREAD			
	Modèle1	Modèle2	Modèle3	Modèle4
Intercept	5.532 (9.57)*	5.349 (9.00)*	5.295 (8.35)*	5.729 (8.87)*
BLC	0.012 (2.30) **			0.0123 (2.33) **
INSIDER		0.023 (1.28)		0.028 (1.49)
INST			0.00025 (0.05)	-0.0032 (-0.67)
PRICE	-0.013 (-2.52) **	-0.013 (-2.33) **	-0.012(-2.34) **	-0.013 (-2.38) **
VOLUME	-0.232 (-1.78)**	-0.314 (-2.32)**	-0.280 (-2.10)**	-0.273 (-2.03)**
RVOL	0.671 (0.69)	0.521 (0.53)	0.501 (0.5)	0.681 (0.71)
SIZE	-0.096 (-0.99)	-0.069 (-0.7)	-0.084 (-0.84)	-0.082 (-0.85)
Wald chi2 (p-value)	47.51 0.0000*	39.54 0.0000*	38.35 0.0000*	45.72 0.0000*
R-square	0.7177	0.6340	0.6542	0.6958

Notes: The table reports results from estimating a panel regression model for one measure of liquidity as the dependant variable: SPREAD is define as the difference between ask and bid price divided by the average of the bid and ask price, calculated for each quote. The independent variables are the blockholder's ownership (BLC), the insider ownership (INSIDER), the institutional ownership (INST), the price (PRICE), the trading volume (VOLUME), the return volatility (RVOL) and the size firm (SIZE). Ownership by blockholders (BLC) is the percentage of shares held by the large shareholder. Insider ownership (INSIDER) is defined as the percentage of the outstanding shares held by the firm's insiders. Insiders are defined as officers, directors and all other investors who may be related to the management. Institutional ownership (INST) is defined as the percentage of shares held by the institutional. Price (PRICE) is the average of closing daily. Trading volume (VOLUME) is defined as total trading volume divided by of trading days. Return volatility (RVOL) is measured as the standard deviation of daily close-to-close returns. Size firm (SIZE) is the natural log of the market value of the firm's equity. For each model, we report the estimated coefficients, t-statistics, the Wald chi2-value with the associated p-value and the R-squared.* denote significance at the 1 percent level, and ** denote significance at the 5 percent level.

Table 2 presents the results of estimating equation, in which the relative spread (SPREAD) is the dependent variable. Ownership by blockholders (BLC), the insider ownership (INSIDER) and the institutional ownership (INST) are independent variables along with other control variables. The sample includes 19 Tunisian firms for the 2001-2005 periods.

The test of Fisher is significant at 5 percent level; it confirms the existence of effects specific to the firm. In addition, the test of Hausman (1978) is significant; it confirms the random specification for the measure of liquidity.

As documented in Comerton-Forde and Rydger (2006) study, we find a positive relation between bid-ask spread and blockholder ownership in Model 1. The ownership concentration variable (BLC) is significantly positive at the 5 percent level (t-statistic=2.30) which detects that blockholder's ownership in Tunisian firms may decrease liquidity.

In Model 2, the spread is regressed on insider ownership. We find the signs of the parameter estimates for insider ownership is positive (0.023), consistent with the awaited sign but it is not significant. Sharma (2005) finds this result. Institutional ownership is put into the Model 3 with control variables. Institutional ownership does not significantly affect of the bid-ask spread. The

coefficient is positive but it is not significant (t-statistic=0.05).

In Model 4, we include all ownership variables. We show that the bid-ask spread is positively and significantly related to the proportion of a firm's shares held by the large blockholders. The coefficient related to variable (BLC) is positive and significant at the 5 percent level (t-statistic=2.33). Our first hypothesis (H₁) is confirmed suggesting a positive relation between

bid-ask spread and the ownership concentration. This result is in conformity with the assumption that the large blockholders are regarded as informed investors. Our empirical results support the findings of Naes (2004) on a sample of Norwegian firms, which conclude that the owner concentration, measured by aggregate holdings of the five largest owners, increases the spread.

Contrary to our hypothesis (H₂), the insider ownership (INSID) variable has a positive (0.027) but insignificant coefficient (t-statistic=0.135). Thus, we fail to find an association between the spread and the insider ownership. Our findings imply that the shareholding of the insiders does not seem to affect the liquidity in the Tunisian context. This is not consistent with the evidence documented in Sarin et al., (2000) study who concludes that insider ownership is positively related to bid-ask spread.

The inclusion of institutional ownership (INST) has no significant effect on the regression as shows in Model 4. This finding is also consistent with those of Neas (2004) and Sharma (2005), but opposite those of Jennings et al., (2000), Barabanov (2002) and Dennis and Weston (2001), who find that the relative bid-ask spread is negatively related to the institutional ownership. These authors interpret this as the preference of institutions for more liquid stocks. However, their result is in contrary to the finding of Kothare and Laux (1995), Sarin et al., (2000).

For the control variables included in our regression model, we find negative and statistically significant effects of the stock price (PRICE) and trading volume (VOLUME) on the bid-ask spread (SPREAD). The estimated coefficients of the stock price (PRICE) and trading volume (VOLUME) are statistically significant at the 5 percent level. These empirical results are consistent with the theoretical predictions of Stoll (1978), and the empirical evidence reported in Sarin et al. (2000), Heflin and Shaw (2000), Attig, Gadhoun and Lang (2003), and Rubin (2007) but are contrary to the evidence documented in Comerton-Forde and Rydge (2006) study.

We find a positive relation between the spread and the return volatility (RVOL). The coefficient for this variable is not significant in any of the regression estimated.

The firm size variable (SIZE) seems to be statistically insignificant. We fail to report relationship between firm size and bid-ask spread. It is not consistent with the findings of Sarin et al. (2000) and Naes (2004) who conclude that the spread decreases with the price, the volume and the size and increases with the returns volatility.

5. Conclusion

This study attempts to link corporate governance variables, large blockholder ownership, insider ownership, and institutional ownership and a market microstructure variable, bid-ask spread, in the Tunisian Stock Exchange during January 2001-December 2005.

Using a panel regression approach, we examined this relation to determine whether spread is associated with the percentage of shares held by the large blockholders, institutional owners and insider owners.

The most consistent result we find is the positive relation between bid-ask spread and blockholder ownership. We also find a relation positive but insignificant between insider ownership and bid-ask spread. This result is in accordance with the results obtained by Sharma (2005). The coefficient to this variable is in accordance with the awaited sign. This result is coherent with that found by Sarin et al., (2000). Consistent with Neas (2004), the bid-ask spread and the level of institutional ownership are negatively related, but this relation is not statistically significant.

Our results suggest that stock liquidity decreases with concentrated ownership.

Future researches seem to be considerably relevant, particularly in Tunisian context, to take into account foreign ownership and family ownership in order to detect their effect on the liquidity.

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