Ownership dispersion and market liquidity

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ABSTRACT

We revisit the relationship between ownership dispersion and market liquidity. For ownership dispersion, we consider two dimensions: number of shareholders and blockholder ownership. For market liquidity, we consider four categories of liquidity measures: spreads, probability of informed trading (PIN), depth, and volume. Our sample includes NASDAQ firms in addition to NYSE and AMEX firms. We find several relations that are not documented in the extant Finance literature. Overall, our test results are consistent with the idea that higher ownership dispersion improves market liquidity.

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1. Introduction

In this paper we examine the relation between ownership dispersion and market liquidity of stocks. It is generally believed that a dispersed ownership leads to better market liquidity (see for example, Booth & Chua, 1996; Bolton & Von Thadden, 1998). However, previous empirical studies of the way in which blockholder ownership affects spreads of stocks listed in the New York Stock Exchange (NYSE)[1] provide mixed results (see Kini & Mian, 1995; Heflin & Shaw, 2000). Therefore, we revisit this issue in this paper. In addition, the following important questions have yet to be answered in the Finance literature: (i) Blockholder ownership is just one dimension of ownership dispersion. How does the number of shareholders, another dimension of ownership dispersion, affect market liquidity? (ii) How does ownership dispersion affect other aspects of market liquidity, such as probability of informed trading (PIN as in Easley, Kiefer, O'Hara, & Paperman, 1996) and trading volume? (iii). What is the relation between ownership dispersion and market liquidity of stocks in the NASDAQ market? Finally, (iv) How does firm size influence the relation between ownership dispersion and market liquidity? We conduct tests to answer these questions.

Kini and Mian (1995) analyze 1985 data on 1063 New York Stock Exchange (NYSE) firms. They find no support for a significant positive relation between spreads and blockholdings.[2] In a later study, Heflin and Shaw (2000) also examine mostly NYSE firms (they use 1988 data for 260 firms: 259 listed on the NYSE and one listed on the American Stock Exchange (AMEX)). They find that increased blockholder ownership is related to higher spreads. The two papers clearly contradict each other. However, the two studies refer to different sample year and sample size. So we cannot exclude the possibility that the different results in the two studies may be sample specific. To address this problem, in this paper we examine a large sample of stocks in 1995. If our results confirm either one of the two studies, we may draw more confident conclusions about the affect of blockholder ownership on spreads.

Heflin and Shaw (2000) argue that in a firm with a concentrated ownership structure, the large shareholders have access to private information, and therefore, their trading increases the adverse selection risk faced by market makers. Thus, market makers are forced to increase the bid-ask spreads for this stock and trade less, which reduces the liquidity of the stock (see for example, Glosten & Milgrom, 1985; Easley & O'Hara, 1987, 1992). This argument suggests

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[1] In addition to 259 NYSE firms, Heflin and Shaw (2000) also include one American Stock Exchange (AMEX) in their sample.

[2] Kini and Mian (1995) also document a non-positive bid-ask spread – insider ownership relation and conclude that insider trading has no impact on spreads. At the same time, they find a significantly negative relation between the bid-ask spread and institutional holdings. They attribute this result to the lower information asymmetry in the presence of institutional stockholders.

that blockholder ownership affects market liquidity. However, Bolton and Von Thadden (1998) suggest that in a concentrated ownership structure the number of shareholders who can trade the stock is smaller and thus, effective market capitalization is lower, which in turn reduces the liquidity of the stock. This argument suggests that blockholder ownership may not be the only dimension of ownership dispersion that affects market liquidity. The number of shareholder may also affect market liquidity. To clarify this issue, we use both blockholder ownership and number of shareholders as measures of ownership dispersion and investigate how they affect market liquidity.

Both Heflin and Shaw (2000) and Bolton and Von Thadden (1998) imply that ownership dispersion affects other aspects of liquidity. The arguments in Heflin and Shaw (2000) suggest that market makers increase spreads for higher blockholder ownership because of higher probability of informed trading. This suggestion implies a positive relation between blockholder ownership and PIN. It also implies a negative relationship between blockholder ownership and trading volume because higher spreads discourage trading. Bolton and Von Thadden (1998) suggests that in a more dispersed ownership structure the number of uninformed trading shareholders is higher, which implies lower PIN in each trade. So there should be a negative relation between number of shareholders and PIN. Bolton and Von Thadden's argument that the effective market capitalization is higher for firms with more trading shareholders also implies a positive relation between the number of shareholders and trading volume. Therefore, we test whether ownership dispersion affects PIN and trading volume.

Both Kini and Mian (1995) and Heflin and Shaw (2000) focus on NYSE stocks. Their results may not be applicable to NASDAQ stocks. NYSE is an exchange market while NASDAQ is a dealer network market. Studies about market microstructure have shown that the two markets are different in many aspects (see, for example, Hamilton, 1978). Thus, we also examine the relation between ownership dispersion and market liquidity for NASDAQ stocks.

The effect of ownership dispersion on market liquidity may be different for firms of different size. Small firms have small shareholder bases. A concentrated ownership structure implies high probability of informed trading for them. Therefore, the effect of ownership dispersion may be stronger. Large firms have more shareholders and the effect of possible informed trading by blockholders can be diluted. This fact may weaken the relation between ownership dispersion and market liquidity. In addition, among large firms, it is more difficult to control a high proportion of shares. Thus, there is usually a smaller variation in the proportion of blockholder ownership in these firms. The smaller variation may also weaken the relation between blockholder ownership and market liquidity. So we conjecture that the relation between ownership dispersion and market liquidity should be stronger for smaller firms and weaker for larger firms. We divide the NYSE/AMEX firms into large firms and small firms to test this conjecture.

Our tests on the relation between blockholder ownership and market liquidity of NYSE/AMEX stocks generally confirm the results in Heflin and Shaw (2000). We find a positive relation between blockholder ownership and quoted spread, effective spread, and the adverse selection component of effective spread.

Our test results suggest that the number of shareholders plays an important role in the relation between ownership dispersion and market liquidity. Specifically, ownership dispersion improves quoted depth through a larger number of shareholders, not lower blockholder ownership. The number of shareholders is also negatively related to quoted spread and effective spread.

Our tests show that ownership dispersion also affects other aspects of market liquidity. Consistent with the arguments in Heflin and Shaw (2000), we find a positive relation between blockholder ownership and PIN, and a negative relation between blockholder ownership and trading volume.

Our tests show that ownership dispersion affects the liquidity of NASDAQ stocks in a similar manner. In the NASDAQ market, blockholder ownership is positively related to spreads and negatively related to trading volume; the number of shareholders is negatively related to spreads. Quoted depth in the NASDAQ market is neither significantly related to blockholder ownership nor number of shareholders.

Firm size does affect the relation between ownership dispersion and market liquidity. In our test results for small NYSE/AMEX stocks, most of the relations between ownership dispersion and market liquidity still exist. For large NYSE/AMEX stocks, the positive relation between blockholder ownership and PIN and the negative relationship between blockholder ownership and trading volume persist. However, the positive relations between blockholder ownership and spreads disappear. For large firms ownership dispersion seems to affect spreads mainly through the number of shareholders, which is negatively related to spreads. These results are consistent with our hypotheses.

The remainder of the paper is organized as follows. In Section 2, we describe the data, the variables in our analysis, and their characteristics. In Section 3 we present the statistical analysis for the relation between liquidity and ownership structure. Finally, summary and conclusions are given in Section 4.

2. Data

2.1. Sample description

We first collect data on all stocks listed on the NYSE, AMEX, and Nasdaq. This initial sample consists of 8977 firms with observations available from both the Trade and Quote (TAQ) database and from the Center for Research in Security Prices (CRSP) for 1995.[3]

To eliminate infrequently-traded stocks, we delete from our sample stocks with less than 40 days of trading data based on trade data from TAQ. For the intraday quote data, we exclude observations with: (1) quotes recorded before opening (9:30) or after closing (16:00); (2) non-positive bid or ask prices; (3) quoted spread (at bid and ask prices) that is non-positive or greater than $5; (4) the ratio of the quoted spread to the mid price is greater than 50%; (5) non-firm quotes and quotes corresponding to trading halts; and (6) quotes from exchanges other than the listing exchange. For trade data, we eliminate observations with: (1) trades before opening (9:30) or after closing (16:00); (2) trades reported out of time sequence; and (3) cancelled trades.[4]

We further extract data on block ownership and on the number of shareholders from 1994 proxy statements and annual reports, respectively, for 3,971 of these firms. We omit any stock without data for either of these two variables. After excluding closed-end funds, trusts, REITs, ADRs, and units of beneficial interest (see Fama & French, 1992, 1993), and stocks with splits in 1995, we are left with 3,576 firms, which form our final sample. Among these firms, there are 1071 NYSE-listed firms, 323 firms listed in AMEX, and 2,182 Nasdaq-listed firms.

2.2. Variables

2.2.1. Liquidity variables

Liquidity is the dependent variable in our analysis. We use several alternative variables to proxy liquidity, which include spread variables, PIN, and depth. We calculate the *bid-ask spread* as the difference between the bid price and the ask price. Following Stoll

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[3] We focus on the year 1995 since we only have access to proxy statements and annual reports published prior to 1995.

[4] The reason for deleting these observations is that these quotes represent outliers or are erroneous.