

Corporate Governance and Market Microstructure

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The purpose of this study is to find the relation between Corporate Governance and the measures of liquidity. This study was undertaken on 200 shares randomly selected from the universe of around 1600 shares listed on the National Stock Exchange of India. Four measures of liquidity are used here and it is found that firms with good governance policies have narrower quoted spread, effective spread, lower price impact and lower probability of information based trading.

Keywords: Corporate Governance, Quoted Spread, Effective Spread, Price Impact, Market Quality Index.

1. Introduction

The trading that takes place on the stock exchanges are a reflection of the perception the investors have on the company. For example, though the percentage increase in profits are not high as in competing companies, a few companies' market prices increase because investors have good opinion on the present and future performance on the company. Risky securities are more volatile and exhibit a smaller increase in price. The knowledge and perception of the investors on the companies also includes the corporate governance standards followed by the companies. Securities and Exchange Board of India (SEBI) requires companies to follow stricter norms on corporate governance. Many of the top Indian companies are adhering to these guidelines given by SEBI and other regulating authorities. Implementation of governance norms, which are modified from time to time, is a necessity for companies. Corporate governance is important for two main reasons. The first is the increasing complexity of the economy. Second is the need to restore trust in companies. Trust in companies is important for creation of value. Nowadays, the awareness of the shareholders is on increase. Hence shareholders prefer companies with higher value. Value is created when shareholders have trust in the company. Corporate governance focuses on overall market integrity and the incentives it creates for market participants. It also enhances market efficiency. One of the essences of corporate governance is investor protection. It would mean not only increasing

the value to the investors but also loyalty through transparency. Corporate Governance should result in creation and restoration of confidence in the company. Good governance companies are also liquid. Liquidity is defined in two dimensions – marketability and reversibility. A security is liquid if it is possible to take a reverse position without changes in prices. One of the best measures of liquidity is spread.

This study is undertaken with an aim to analyze the impact of market microstructure on corporate governance. It is found that for liquid shares, spread is minimum and vice-versa.

2. Review of literature

Several studies examine the relationship between corporate governance and liquidity. These studies focus on the developed markets. For example, Heflin and Shaw (2000), Rubin (2007) and Chung et.al (2010) focus on corporate governance as a mean to enhance stock liquidity. They argue that the information asymmetry between majority and minority shareholders enhance stock liquidity. Research also shows how internal governance factors like board structure and the external governance factors like transparency to the shareholders affect the value of the firm, the cost of capital and the market price, the capital gains. Diamond (1985) analyze the consequence of voluntary information disclosure and show that reducing the information asymmetries between management and traders tends to decrease the latter's incentives among trader beliefs and smaller speculative position among informed traders. Glosten and Milgrom (1985) argue that liquidity providers may therefore post wider spread and smaller depths for stocks of poorly governed companies because they face greater adverse selection problems in these stocks. For the same reason, the price impact of traders may tend to be greater for stocks of companies with poor governance structure. Easley et.al (1996) show that stocks of companies with better governance structure exhibits narrower quoted and effective spread, higher market quality index, smaller price impact of traders and lower probability of information based trading. They also find that changes in liquidity measures are significantly related to changes in governance score over time. These results suggest that firms may alleviate information based trading and improve stock market liquidity by adopting corporate governance standards that mitigate information asymmetries. Maug (2000) argue that liquidity increases the incentives for large shareholders to trade on inside information. Bacidore and Sofianos (2002) show that among the NYSE listed companies, those based in US exhibit higher stock market liquidity than those based outside the US. Brockman and Chung prove that among the companies listed on the Hong Kong Stock Exchange, those companies which are based in Hong Kong have a narrower spread and a greater depth than those based in China and the reasons for the same being poor liquidity which is a result of poor protection of shareholder rights. Kanamanou and Vafeas (2005) show that companies with more effective boards issue more frequent and accurate earnings forecasts. This implies lower information asymmetry. Chung (2006) studies the ADR issue of companies operating in countries with stronger shareholder protection and show that these companies exhibit a narrower spread. Attig et.al (2006) studies the impact of liquidity on a sample of Canadian stock and finds that poor information disclosure reduces stock market liquidity. They focus on information asymmetry and liquidity. Chung et.al suggests that poor corporate governance may impair stock market liquidity to the extent that poor governance is associated with low

financial and operational transparency. The authors prove this by examining the effect of corporate governance using an index of attributes that are likely to affect financial and operational transparency. The authors come to this conclusion by creating a corporate governance index with 24 governance attributes.

3. Objectives of the study

The following are the broad objectives of this study

- (i) To examine the effect of Corporate Governance on liquidity
- (ii) To estimate the quoted and effective spread for the sample of 200 shares
- (iii) To find the price impact and probability of information based trading

4. Scope of the study

Corporate Governance initiatives is one of the factors affecting liquidity. Investors trade on shares with the objective to increase their returns which in turn focuses on the liquidity of the security. Hence the role of Stock Exchanges are important in ensuring liquidity. For this study 200 companies' shares were selected at random. Quoted and Effective spread is calculated for all these shares. The data filters for the Trade and Quote (TAQ, henceforth), which is standard for the Market Microstructure literature, given by Huang and Stoll (1996) is used to refine the sample. (i) Quotes having a positive bid or ask prices alone are considered. Quotes having a negative bid or ask prices are ignored. (ii) Quotes having a positive bid or ask trade sizes alone are considered. (iii) Shares having a bid ask spread of greater than 7 or zero are ignored. (iv) Trades before the open and after the close are not considered. (v) trades and quotes which are changed by more than 10 % compared to the last transaction prices are deleted (vi) trades whose prices or volumes are negative are ignored (vii) quotes having error or which are out of sequence are deleted.

5. Methodology

The data consists of market prices of the sample of shares. All the trading that took place during the trading day is taken here. Such type of data, usually called the Trade and Quote data can be obtained from the National Stock Exchange of India, on request.

The formula for quoted spread and effective spread are given as:

$$\text{Quoted spread} = (\text{Aski},t - \text{Bidi},t) / \text{Mi},t$$

Where Aski,t is the ask price for stock i at time t , Bidi,t is the bid price for stock i at time t , and Mi,t is the midpoint of ask price and the bid price. I have then calculated the time weighted average quoted spread for each stock. Quoted spread is one of the most efficient measure of liquidity compared to other measures of spread, as it directly calculates the bid and the ask prices. To measure the cost of trading when it occurs at prices inside the bid and ask quotes, I have calculated the effective percentage spread for the stock. Effective spread is given as

$$\text{Effective spread}_{i,t} = 2D_{i,t} (P_{i,t} - M_{i,t}) / M_{i,t}$$

Where $P_{i,t}$ is the transaction price for the stock i at time t , $M_{i,t}$ is the midpoint of the most recently posted bid ask quotes for stock i at time t and $D_{i,t}$ is a binary variables which takes a value of one if it is a buy order and a value of zero if it is a sell order.

Researchers have given a lot of measures of liquidity. A best measure of stock market liquidity which measures both dimensions of liquidity is the Market Quality Index, suggested by Bollen and Whaley (98). It is given as

$$\text{Market Quality Index} = (\frac{1}{2} \text{Quoted depth}) / \text{Quoted spread}$$

For each stock the time weighted average market quality is calculated over the period.

To estimate the probability of information based trading (PIN), a sequential trade model given by Easley, Kiefer, O'Hara and Paperman (1996) is applied to the stocks. In this model, the market microstructure observes trades, updates and establishes quotes. This process of trading and learning from trading results in price converging to full information values. The EKOP model provides a structure necessary to infer information based trading from observable variables such as number of buys and sells.

6. Results

In this section, I examine how the measures of liquidity are related to corporate governance after controlling for the determinants of stock market liquidity.

A. Descriptive Statistics

The descriptive statistics obtained from the study is represented in Table 1. It includes the average of the index value and the variables like market price per share, the return variance, the market capitalization, firm size and percentage of promoter holdings. The other factors leading to measurement of liquidity which includes quoted depth, effective spread, the market quality index and the Probability of Information based trading are also included in Table 1. The second part of Table 1 consists of a more detailed analysis. Here the market price per share is divided into four quartiles. The averages of the market price is found and placed in ascending order. The first quartile consists of 50 shares with the lowest market price, and the fourth quartile consists of 50 shares with the highest market price. The value of the microstructure variables and the liquidity variables are found for shares of these quartiles and the same are entered in the Table.

It is seen that for sample of 200 companies, that the mean index value for the sample is 8.81. The average market price is Rs. 657. It can be seen from Table 1 that the market price ranges from Rs 424 to Rs 1081, with a standard deviation of 115.62. The return variance, which is the average standard deviation squared is taken for one year. The average percentage of institutional investors stood at 40.72. The mean quoted spread was 1.435, with minimum and maximum values from the first and the last percentiles at 1.82 and 1.25. The mean effective spread was 1.38, with minimum and maximum values from the quartiles as 1.56 and 1.14. The market quality index has a mean of 6026.82 with a minimum and maximum value of 2421.56 and 8776. The PIN value ranges from 0.038 to 0.12, with a mean of 0.23 and a standard

deviation of 0.432. It is seen from the Table that as the market price increases, a decline in quoted spread exists.

B. Corporate Governance, Spreads and Market Quality Index

Regression is used to find the relationship between liquidity and corporate governance for the sample and the control variables using pooled cross sectional and time series data. A number of researches have used the cross sectional and time series analysis to explain the behavior of selected stock attributes like trading volume, share prices and return variance. (McInish and Wood (1992), Van Ness and Van Ness (1999), Chung(1994) and Jain and Chakrabarty (2004)). To isolate the effect of corporate governance on spread, the reciprocal of the share prices is used as given in Chung et.al (2010), because such specifications captures more effectively the effect of tick size induced binding constraints on spreads when spread is measured in relative terms. (Jain and Chakrabarty (2004) use Log (Price) instead of the reciprocal of price). The sample and the measures of liquidity are correlated to a common set of variables. The presence of institutional investors makes the companies adopt better corporate governance standards and at the same time exhibits lower spreads due to greater trading activity. The same holds good for company with higher market prices and trading volumes. Harris (1994) uses firm size as a proxy for the degree of public information available about stock.

Based on these considerations, I estimate the following regression model for the sample.

$$\text{Quoted Spread or effective spread} = \alpha_0 + \beta_1 \text{ Log (Sample value)} + \beta_2 (\text{reciprocal of price}_{i,t}) + \beta_3 (\text{Return Variance}) + \beta_4 \text{ Log (Trading Volume)} + \beta_5 (\text{Institutional ownership}) + \beta_6 (\text{Firm size}) + \varepsilon_{i,t}$$

Where quoted spread is the time weighted mean quoted percentage spread of stocks i in year t , sample value is the price of the sample and return variance is the standard deviation of the daily closing price calculated over the past one year. Trading volume denotes the number of shares traded during the period. Institutional ownership denotes the percentage of shares held by financial institutions, both domestic and foreign. $\varepsilon_{i,t}$ is the error term. I have calculated the “ t ” statistics using White’s (1980) standard error and reported them in the parentheses. Table 2 denotes the results of the same.

On evaluating the quoted spread, we can see that the quoted and effective spread are significantly and positively related to the reciprocal of price and return variance. These variables have a negative relationship with the trading volume. We can also see that quoted and effective spread are negatively and significantly related to institutional investors. Institutional investors, both foreign and domestic, invest in more “transparent” companies, which implies a reduction in information asymmetry. I find mixed results for other control variables like asset tangibility. To examine the relationship between corporate governance and liquidity more efficiently, I find the regression between market quality index and the other control variables. I have taken the reciprocal of price and the log (price) as the dependent variables, and not spread. The results show that the coefficients on the sample are positive and significant. This implies that firms with higher governance score shows higher market quality. I also find that the market quality is higher for firms with lower return volatility, increased trading volume and higher institutional investments. Hence it is implied that good

governance companies have a higher institutional investment and a lower spread. The sample which I have taken exhibit a lower spread, lower information asymmetry and a higher market quality index.

C. Regressions results for changes in variables

I have also used a different estimation method, as used by Chung et.al (2010), to check the robustness of the results. For this purpose, I have used the fixed effect regression method. This method focuses on the change in variables over time to estimate the effects of independent variables on the dependent variable. Fixed effect regression method is used to find the relationship between corporate governance and liquidity from the time series variation in the control variables.

To further assess the robustness of the relationship between governance and liquidity, I estimate the regression using changes in independent and dependent variables instead of taking the absolute values. Chung et.al finds that these regressions allow examining the longer term effect of corporate governance on stock market liquidity. The results of the same are given in Table 3. The results show that the coefficient on the sample is negative and significant for the spreads, showing the inverse relationship between corporate governance and spread. The coefficient on previous period's change is not significantly different from zero for both spreads showing negative relationship between spread and the index is contemporaneous. From the results it is also found that there is a positive relationship between the market quality index and the sample.

Regression is also used to find the relation between corporate governance and the probability of information based trading (PIN). The results show that firms with better governance show a smaller PIN. These results are given in Table 4. The smaller average PIN for the companies with higher governance score is driven by their smaller information based trading. To examine whether better corporate governance results in lower information based trading, regression is used between the probability of information based trading and the other control variables. The results here shows that companies with better governance structure exhibits smaller Probability of Information based Trading.

7. Summary and Conclusions

Good governance companies are highly liquid in the secondary markets because their shares are financially and operationally transparent. This reduces asymmetries between insiders and liquidity providers. Spread is composed of three components – the cost of processing orders, the inventory cost and the cost of asymmetric information. So when the cost of asymmetric information declines, this results in a reduced spread. My results shows that companies with better governance have greater liquidity measured by quoted and effective spreads, higher market quality index and lower probability of information based trading. I also find that changes in liquidity measures are significantly related to changes in governance index over time. This study has established a linkage between corporate governance and liquidity and shows that firms with good governance standards have a higher liquidity. This result was supported using different methods of regressions.

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