CHAPTER – II

REVIEW OF THE LITERATURE

2.1. Introduction

The objective of this chapter is to provide an overview of the published works that have been done, so far, in the area of stock market liquidity. The area is vast and it is not possible to include all studies in a limited space. In this chapter a modest attempt has been made to present discussion on some important studies after classifying them into different heads.

2.2. Liquidity and Asset Pricing

It would not be an exaggeration of fact if it is said that studies regarding market liquidity gathered momentum after the paper published by Amihud and Mendelson (1986) (herein after A & M). A & M propose that illiquidity or foregone liquidity is a risk and investors require more return to compensate illiquidity. According to them investors anticipate that at a future date they will have to sell their assets and at that time they will have to incur transaction costs. Hence they will discount their stocks at a higher rate that includes the impact of higher transaction costs. Therefore, a positive relationship between return and illiquidity prevails.

In another study A & M (1988) demonstrate that an improvement in stock liquidity decreases firm's cost of capital. This also increases firm's set of viable investment opportunities. The reason behind this, according to A & M, is that with a lower cost of capital managers are likely to accept projects which previously had negative net present values (NPV). The improvements in stock liquidity expand the
investment opportunity set and therefore, influence subsequent corporate investment activity.

A & M (1988) also examine the costs and benefits of increasing liquidity. By increasing liquidity, firms reduce their cost of capital and increase their value. A & M analyse the role of a number of financial management policies and institutional mechanisms in enhancing the secondary market liquidity of firms. The implication of these findings is that one needs to move from the two dimensional risk/return framework to a three dimensional risk/return/liquidity framework.

A & M (1991) establish that more liquid a financial instrument is the higher will be the price for which it can be sold. They also argue that companies whose claims are traded in the capital market can benefit by under taking steps to increase the liquidity of their claims since increase in the liquidity would reduce cost of capital. A & M (1991) propose public authorities to help reducing the cost of capital and increase market efficiency by introducing rules and procedures that increase the liquidity of traded assets.

In their study Eleswarapu and Reinganum (1993) raise some doubts regarding the findings of A & M (1986). Using the same measure of bid-ask spreads as the illiquidity measure for 1961-1990, they report that the positive association between bid-ask spread and returns appears to be seasonal, confined to the month of January only.

Later, Brennan et al (1996) nullify Eleswarapu and Reinganums' (1993) observation. They find that the regression coefficients on the indicator variables for price impact groups increase monotonically from low (more liquid) to high (less liquid) portfolios, suggesting that excess returns are higher for less liquid stocks.
Haugen and Baker (1996) also find a statistically significant negative relationship between return and liquidity. Brennan et al (1996) re-establish A & M (1986) by taking price and Fama and French (1993) risk factors of size and book to market ratio into account. However, it is interesting to note that a negative relationship between illiquidity and return is reported by them while taking proportional spread as a measure of liquidity. Results of this study indicate that all the measures of liquidity do not capture same dimensions of liquidity. Going one step further it could be stated that use of different measures of liquidity may provide contradictory results.

In this context, the study conducted by Datar et al (1998) is a very important one. Using Turnover Ratio as the proxy to liquidity they report that liquidity plays a significant role in explaining the cross-sectional variation in stock returns. After controlling for firm size, book to market ratio and firm beta they find liquidity is not restricted to the month of January only but persists through out the year. In general, they report that on average, a decrease of 1% in turnover increases the required rate of return by 4.5 basis points per month.

Brennan et al. (1998) find strong evidence on the importance of trading activity in forecasting stock returns. Using dollar volume as a proxy for liquidity, they show that there is a significant negative effect of volume on returns and that this effect is robust to the choice of risk-adjustment model. For a sample covering 1966-1995, a one standard deviation increase in dollar volume leads to a decrease in excess returns of 0.11% per month, after controlling for the usual non-risk factors. Moreover this study also finds that there is a reversal in the size effect when dollar volume is included in the regression model.

The study conducted by Chordia, Roll and Subrahmanyam (2000) is a comprehensive one in all respect. They use five spread related measures in their study. Using NYSE data, this study reveals that liquidity, trading costs and other specific microstructure components have common determinants. Their study also reports that individual stock liquidity and industry liquidity moves together.

Study conducted by Chordia et al (2001) reports that daily changes in market averages of liquidity are highly volatile and negatively serially correlated. This study observes that long and short-term interest rates influence liquidity.

A few studies explore the relationship between liquidity and price volatility. Coppejans et al (2001) find increase in liquidity substantially reduces volatility over the short-run resulting in price efficiency.

Pastor and Stambaugh (2001) find that cross-sectional variations in expected returns are explained by the sensitivities of returns to fluctuations in aggregate liquidity. Liquidity is measured in their study by price fluctuations induced by order flow using daily data for the period ranging from 1966 to 1999. It is also found that stocks with higher sensitivities to liquidity outperform stock with low sensitivities by 7.5 percent per year.

Jones (2001) uses the proportional spread of Dow Jones stocks and the share turnover of NYSE stocks over the last century and concludes that both spread and turnover predict annual excess market returns up to three years ahead.

In their study Danielson et al (2002a) observe liquidity risk is endogenously determined. A clear feedback is also observed between liquidity, volatility and volume.
Amihud (2002) using Fama and MacBeth (1973) methodology explores the effect of illiquidity on stock returns for NYSE stocks over the period between 1963 and 1977. This study reports that ex-ante excess return of a stock is an increasing function of expected illiquidity and unexpected stock returns.

Acharya and Pedersen (2005) model liquidity risk in a CAPM setting, adding factors for the level and variability of illiquidity. Liquidity is measured by the covariance between stock returns and market illiquidity and the covariance of stock’s illiquidity with market return and with market illiquidity. Their results suggest that the covariance between a security’s illiquidity and the market return is particularly important for empirical study.

Gibson and Mougeot (2004) examine the effects of systematic liquidity risk on the excess return and of the market document that the liquidity-risk premium varies significantly over time with the probability of future recession.

In a relatively newer study Chordia, Sarkar and Subrahmanyam (2004) explore the causes of daily liquidity movements in market capitalization based portfolios of NYSE stocks over a period of more than 3000 trading days. The study reveals volatility shocks in one market are informative in shifts in liquidity.

2.3. Ownership Structure and Stock Market Liquidity

One could find a number of studies investigating the relationship between stock market liquidity and ownership structure. How could the number of shareholders and institutional holdings affect liquidity of particular scrip is the main point of discussion of these studies.

In an earlier study Demsetz (1968) reveals that number of shareholders is an important determinant of stock market liquidity. With the increase in the number of
shareholders the number of transaction per unit of time (which is a measure of
liquidity) increases.

Glosten and Harris (1988) find an insignificant relation between spreads and
insider holdings for a sample of 250 NYSE stocks in the period 1981-1983.

Chiang and Venkatesh’s (1988) study shows that how does the market view
corporate insiders and institutional holdings through their effects on the spread.
Insider holdings are found to be positively related to the dealer’s information costs
after controlling for other holding costs and firm size, while institutional holdings are
not found to have any impact on the spread.

In most of the cases, it could be noticed that a business house controls the
functioning of a business by keeping bulk shares in their possession. Holmstrom and
Tirole (1993) report that concentrated ownership reduces liquidity.

Sarin et al (2000) in their study, confirm the findings of the study conducted
by Holmstrom and Tirole (1993). In addition they establish that for higher insider
ownership the loss of liquidity is a consequence of higher adverse selection costs.
Conversely, this loss of liquidity could be attributed to inventory carrying costs in
case of higher institutional ownership.

Heflin and Shaw (2000) find that firms with greater block holder ownership
have larger quoted and effective spreads, a larger adverse selection spread component,
and smaller quoted depths.

Using a comprehensive data set covering the period 1980-1996, Gompers and
Metrick (2001) find that institutional investors compared to individual investors prefer
stocks in larger market capitalization companies which are more liquid and have
higher book-to-market ratios.
Naes (2004) reported that no strong relationship could be documented between liquidity and institutional ownership. Ownership variables which affect spreads do not, in general, jointly affect depth in the same way. This study has clearly established that spread and depth measure different dimensions of liquidity.

2.4. Information and Stock Market Liquidity

There are few studies in the financial literature which have sought to investigate the probable relationship between the stock market liquidity and information content of stock market.

According to Glosten and Milgrom (1985) one cause of illiquidity is the presence of privately informed traders. One such group of privately informed traders is the insiders of a firm.

Seyhun (1986) shows that insider trades precede abnormal changes in the price of their company's stock. This suggests that the level of insider ownership in a firm may influence the liquidity of the stock.

Bhide (1993) further argues that active stockholders who reduce agency costs by monitoring managers may also reduce stock liquidity by increasing informational asymmetries.

Kahn and Winton (1998) argue that higher liquidity demands cause share prices to not fully reveal how much monitoring occurs. As a result higher liquidity would be associated with decreased monitoring.

Maug (1998) suggests that a liquid stock market not only reduces a large shareholder's incentive to monitor but also makes it easier for them to purchase additional shares at a less cost. Based on the latter possibility, he finds that liquidity
has a positive impact on monitoring by making corporate governance more effective. This result seems to contradict with the findings of Kahn and Winton (1998).

The study conducted by Naidu and Rojeff (1994) deals with volatility, liquidity and efficiency. According to them faster availability of information may lead to efficiency but increase in information may increase price fluctuation. But, the results of this study report some contradictory results also. When bid-ask spread is used as a measure of liquidity, liquidity decreases with the introduction of electronic trading system. Conversely, other liquidity measures indicate an upward movement of liquidity during the same period of time.

Probably the most important study relating to this issue is perhaps the study conducted by Brennan and Subrahmanyam (1995). Based on the Admati and Pfleiderer model (1988) they find that increase in the number of investment analysts tends to be related to a decrease in adverse selection costs of transaction. Where, adverse selection cost is the proxy to liquidity- measured in terms of the log of the ratio of the increase of market depth to price:

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\log \lambda = \log \left[ \frac{\sqrt{n} \cdot \text{var}(\mu)}{n+1 \cdot \text{var}(x)} \right]
\]

Where, \( \text{var}(z) \) is the variance of the orders from noise traders, \( \text{var}(\mu) \) is the variance of final pay-off and \( n \) is the number of risk neutral traders.

Pagano and Roell (1996) compare liquidity and price formation process in several trading systems with different degrees of transparency. Where, transparency is defined as the possibility to observe the size of the direction of the order flow. This study reveals that a greater transparency in the trading process improves liquidity by reducing opportunities for taking advantage of less informed participants. Using
spread as a measure of liquidity they show that liquidity increases with the increase in transparency.

Domowitz (2001) reveals that electronic markets embodying automated trade executions are linked to increase in liquidity.

Heflin et al (2001) observe that liquidity is strongly associated with the disclosure quality.

Matoussi et al (2004) analyse the liquidity of stocks listed in the Tunisian Stock Market (BVMT) and investigates its potential determinants. They find disclosure level affects the level of liquidity. Better disclosure may lead to higher liquidity. After controlling for factors that may affect liquidity this study finds a significant negative association between relative spread and disclosure level and a significant positive relationship between disclosure and both quoted depth and depth to spread ratio.

2.5. Liquidity and Different Trading System

Several research studies make comparison between two stock exchanges on the basis of liquidity. The issue of liquidity under different trading systems has also been addressed by these researchers.

A comparative study between the centralized and fragmented markets conducted by Biais (1993) reveals that under the centralised market system market participants first observe prices and transactions and develop strategies. On the contrary, in the fragmented markets, transactions are out-come of bilateral negotiations which the other market participants cannot observe. Consequently, information about market conditions is more readily available in centralized markets
than in fragmented markets. The liquidity suppliers that is, market makers, dealers etc, take advantage of the lack of transparency of the fragmented markets.

Study conducted by Pirrong (1996) shows that automated exchanges could be more liquid than open out cry exchanges.

Huang and Stoll (1996) have calculated the liquidity indicators for NASDAQ and NYSE. Taking pairs of securities from both the exchanges they compare liquidity proxies like quoted spreads, effective spreads and relative spreads. They report that the spreads in NASDAQ are twice higher than that of the NYSE. According to them market structure and other order matching processes are behind this difference.

The study conducted by Huang and Stoll (1996) is based on large capitalization stocks. Bessembinder and Kaufman (1997) extended the analysis to smaller firms and find that the above result sustains in case of smaller firms too.

Conversely, Chan and Lakonishok (1997) report that liquidity in NASDAQ is lower than that of NYSE in case of institutional holders.

Krishnamurty and Lim (2000) study cross-sectional variation in liquidity of a set of stocks traded in BSE and NSE. The paper reports that NSE is more liquid than BSE during the study period.

Jain (2001) evidences the fact that markets with a mixed structure that is both order driven and quote driven record higher liquidity than those of the purely order driven market.

Venkataraman (2001) similar to Huang and Stoll (1996) has conducted a study on shares listed on NYSE and Euronext, Paris and it reveals that liquidity position of Euronext is higher than that of the NYSE.

On the other hand Kasch-Haroutourian and Theiessen (2003) also report that Euronext Paris is more liquid than that of the Deutsche Borse.