CHAPTER – IX

CONCLUSION

Liquidity is an important feature of any stock market. It is the lubricating agent that ensures frictionless smooth functioning of the market. According to Ross Levine (1996), “Stock markets may affect economic activity through the creation of liquidity. Many profitable investments require a long-term commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make investments less risky and more attractive because they allow savers to acquire an asset-equity and to sell it quickly and cheaply if they need access to their savings or want to alter their portfolios. Put succinctly investors will come if they can leave.”

The present study in this context has tried to explore some important aspects of liquidity of two major stock exchanges of Indian Capital Markets namely, BSE and NSE. In the last decades, these two exchanges have been experiencing many changes in terms of regulatory activities, modernization and other changes at the structural level as well as at the operational front to attract coveted funds to ensure economic growth in the country. Over the decades of capital market reforms a healthy competition between the above mentioned exchanges could also be noticed. BSE being the oldest stock exchanges in the country has a strong time tested operational structure and experience. NSE also has been developed as a modern exchange and is more flexible to absorb changes relating to stock trading mechanism. Also these two exchanges together constitute the larger share of the shareholding within the country. Hence, a study on these two exchanges, is expected to
bring out the actual state of the Indian stock market. The findings of this study are stated below:

1. Measurement of Liquidity

Stock market liquidity has many facets. It is not directly observable like stock returns. A large variant of techniques are available in the literature to measure liquidity. According to Amihud (2002) it is doubtful whether there exists any single measure that captures all aspects of liquidity. Moreover, there are many constraints in the emerging markets regarding the availability of data to construct sophisticated measures of stock market liquidity. Many measures, particularly the spread and depth related measures could not be computed due to the unavailability of time series data regarding this. Recently, impact cost has been used as the measure of liquidity in NSE but data for the same is not available for BSE during the entire study period. On the other hand different measures computed from the available data may indicate different dimensions of liquidity and use of these measures interchangeably might lead to contradictory results.

Present study, therefore, has applied Spearman's Rank Correlation on four of such measures of liquidity and found that out of 210 coefficients only 54 appear to have strong substitutability between them. Thus, only 26% of the observed relationships between measures show high degree of association. From the results of rank correlation, it appears that there is a strong substitutability between Amivest Liquidity Ratio and Turnover Ratio and these two ratios have been used as the measures of liquidity in the present study.
2. Inter Exchange Comparison

NSE has been operating as an order driven market while BSE was operating as a mixed structured market where both order driven and quote driven system was in vogue. But, from 13.08.2001 BSE has been transformed into a purely order driven systems.

In this study the monthly liquidity for a period of 11 years for these exchanges has been compared. The whole study period has been divided into two sub-periods, the cut off point being the September 2001.

The computed value of Coefficient of Variation clearly indicate that liquidity of NSE is more consistent than that of the BSE for the entire study period in terms of both the measures applied in the study. This result is also applicable in two sub-periods.

Moreover, the present study has empirically investigated the mean differences between the liquidity of two exchanges. The results of ‘t’ tests clearly indicate the superiority of NSE over BSE regarding liquidity when liquidity is represented by Turnover Ratio. On the other hand, a slightly different result has been reported when Amivest Liquidity Ratio is used. In latter case, no significant mean difference has been reported by the results of t test for the first sub-period. However, for the second sub-period and the entire study period the results are at par with that of the Turnover Ratio.

Furthermore, the ‘paired t test’ result reveals that listing in NSE has positive impact on liquidity of scrips.

The superiority of NSE over BSE in this respect may be due to some structural differences. From the very inception NSE has been trying to reach the masses, whereas, BSE has been acting as a brokers’ club. Being a premier institution it would be normal to expect that other exchanges should follow BSE but, in practice it is the NSE that has
occupied the driver's seat. Actually, NSE poses a healthy threat for the existing exchanges, especially to the BSE. It is the innovative threat from NSE which led to introduction of various schemes on part of BSE. NSE has edge over BSE in the following points:

i) The National Securities Clearing Corporation, a wholly owned subsidiary of the NSE offers legal guarantee and protection against default in payment. This type of insurance was not present before the year 1996. BSE on the other hand has to enter into a tie up with the New India Assurance Company Limited to provide an integrated Comprehensive insurance policy which covers the infidelity of employees, loss of securities of specified nature, electronic and computer crime, error and omission of professional indemnity.

ii) The NSE ensures wider accessibility through satellite trading through VSAT. To cope with this BSE has been forced to introduce Bombay on-line trading mechanism.

iii) The brokerage fee of NSE outside Mumbai is 0.1% which is 0.5% for BSE.

iv) In NSE the identity of the broker remains undisclosed till the end of transactions are executed. This type of security is not available in BSE.

v) NSE has a very strong derivative section. Conversely, BSE used to rely upon the 'Badla' system. Recently it has done away with the 'Badla' system and introduced derivatives.

Perhaps introduction of rolling settlement and derivatives have the most positive impact on the enhancement in liquidity in the exchanges. According to Economic Survey 2004-05, "....the shift to rolling settlement and the take off of derivatives trading which were the two major changes of this period have significantly helped market liquidity".
To conclude, both the exchanges in terms of number of transactions have climbed up as the major stock exchanges in the world. Table 9 shows that NSE is ranked 3rd in terms of number of transactions in the year 2005 and BSE is ranked 5th during that year.

<table>
<thead>
<tr>
<th>Exchange</th>
<th>2001</th>
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<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>NYSE</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>NSE</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Shanghai</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>BSE</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Korea</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Source: Table 4.2 India’s Official Economic Survey, 2004-05

3. Forecasting Liquidity at an Aggregate Level

The present study, using an econometric model has tried to predict the monthly liquidity of the two exchanges. The ARIMA model has been used to achieve the above objective. The iterative process suggests that an ARIMA model of (1,1,1) could be the appropriate model regarding this when liquidity is measured in terms of Turnover Ratio. On the other hand a (0,1,1) model may be considered to predict Amiwest Liquidity Ratio. The model constructed by this study may be used for the predictions of monthly liquidity within the sample period or outside the sample period for both the exchanges.
4. Association between Stock Market Liquidity and Some Selected Macro Economic Indicators

Present study tries to find any possible nexus between market liquidity of BSE and NSE with some very important economic indicators namely Index of Industrial Production (IIP), Consumer Price Index (CPI), Exchange Rate of Indian Rupee against the US Dollar (EXRATE), Gold price (GOLD) and Money Supply (M3).

The results of Co-integration test indicate that all independent variables are separately co-integrated with the market liquidity and the results of long run static model reveal that a positive relationship between market liquidity and economic indicators prevails during the study period.

The results of ECM indicate that a positive and significant relationship exists between liquidity (measured by either of the two proxies) and IIP at concurrent from for both the exchanges.

While investigating the relationship between CPI and market liquidity the empirical results report that a negative relationship exists between liquidity and CPI at its lag form when liquidity is measured by Turnover Ratio. It indicates that previous month’s inflationary condition has negative affects on the current month’s stock market liquidity. However, when liquidity is measured by Amivest Liquidity Ratio CPI could be related to the current month’s liquidity. Although, the negative relation ship prevails between these two variables.

When the relationship between EXRATE and market liquidity is considered, the empirical results report a positive relationship between these two variables when liquidity
is measured by Turnover Ratio. However, when liquidity is measured by Amivest Liquidity Ratio no such nexus could be found.

The ECM results show that there exists a positive impact of gold price on stock liquidity.

While investigating the relationship between M3 and market liquidity the empirical results report that a positive relationship exists between liquidity and M3 at its concurrent form when liquidity is measured by Turnover Ratio. However, when liquidity is measured by Amivest Liquidity Ratio previous months M3 could be related to the current month’s liquidity. Although, the positive relationship prevails between these two variables.

Furthermore, the correlation coefficients reveal that the independent variables are strongly associated among themselves. The technique of Principal Component Analysis suggests that the joint effect of all the independent variables on stock market liquidity is significant and positive.

5. The Association between Liquidity at the Scrip Level and Accounting Variables

According to Amihud et al (2005) one of the main sources of illiquidity is the lack of information. The role of accounting information may play pivotal role in this context [Breton and Taffer (1995)]. A good many studies have tried to investigate the relationship between accounting variables and stock market variables. In this study an attempt has been made to find any probable association between liquidity at the scrip level and some selected variables.

In an attempt to measure the empirical relationship between scrip level market liquidity of firms listed both in the BSE and NSE with some selected accounting
variables, the present study has employed two variable models and multivariable models. The results of two variable models are straight forward. In general, a positive impact of Growth of Assets, Growth of Sales and change in PBIT could be observed on the percentage change in scrip level market liquidity for both the exchanges when Amivest Liquidity ratio has been used. But in case of leverage no consistent results are found during the study period. Moreover, the study has not found any concrete evidence to establish any relationship between Current Ratio and Stock market liquidity.

When multiple regressions are taken into consideration although the predictive power of the model has increased throughout the study period but the results of the regressions faces the problem of multi co-linearity. Since the sources of the accounting information are either the Income Statements or the Balance Sheet the existence of such relationships may be obvious. To cope with the problem of multi co-linearity present study has tried to transform the original variables into their first differenced form and re-run the regression. But no improvement has been found in the newly estimated results. Therefore, the method of Principal Component Analysis has been adopted to find Principal Component from correlated variables. Results achieved from this mechanism give a conclusion that the joint effect of log of Assets, log of Sales and PBIT on scrip level market liquidity is significant and positive but no specific relationship has been found between the latter and other two accounting variables under consideration.

On the whole, from the firm specific analysis it appears that when the market liquidity is measured by Amivest Liquidity Ratio the predictability of the models are greater and results are more specific than the same measured in terms of Turnover Ratio.
Stock Market Liquidity is a vast area and all issues could not be dealt with in a limited scope. The study has some obvious limitations. They are as follows:

1. Due to non-availability of data all the techniques of measuring liquidity could not be constructed.

2. The data period for scrip level analysis is 5 years. A larger period may give better results.

3. For scrip level analysis 80 companies have been arbitrarily selected. A larger sample may affect regression results.

4. While predicting liquidity some other mechanism such as EGARCH model may be adopted.

5. In chapter VII ECM has been applied to investigate the association between stock market Liquidity and some selected macro economic indicators. There may remain causal relationship between the variables. A more sophisticated technique such as VECM would be applied in future research.

Suggestions for future research:

A few suggestions may be given to future researchers in this context. They are as follows:

1. The stock market liquidity may vary industry to industry. An industry specific study at the scrip level as well as the aggregate level may be useful in the context of stock market liquidity.

2. Shareholding pattern may have an impact on stock market liquidity. This may be incorporated in scrip level analysis.
3. Impact of human capital or intellectual capital may be considered as an important variable while conducting studies in this subject.

4. The future researchers may investigate relation ship between stock market liquidity and flow of funds from FIIs and FDIs.

5. Looking at the inflationary pressure on entire economy the impact of inflation on stock market liquidity may be investigated by the use of techniques such as the “Event Analysis”.

6. Finally, a similar study on the impact of depression in the sub-prime market in the USA on the Indian stock market liquidity may also be an important area of investigation which is out side the scope of present study.