CHAPTER 7

SUMMARY AND FINDINGS

Liquidity of a financial asset has been identified as an important factor in the smooth functioning of financial markets as it helps market participants to overcome unexpected financial needs without undergoing major losses. The liquidity of a security and how it varies over time is of major concern to every market participant. The research on liquidity commonality directed the attention of research on liquidity to a new territory. There are various reasons that can be quoted from the literature to highlight the importance of liquidity commonality and its related research. Given that liquidity affects asset prices, then liquidity commonality also affects asset prices. This fact is not taken into consideration by the conventional models in the asset pricing literature. The basic behavior of liquidity commonality is that any shocks to it causes market-wide effects and impacts the smooth working of the financial markets. In worst case scenario, shocks to liquidity commonality leads to financial crisis or stock market crashes.

The existing literature does not concentrate on the behavior of liquidity commonality of emerging order driven markets as well as derivatives markets even after the fact that one of the main reasons for the 1997-98 Asian financial crisis is liquidity commonality. This study makes an attempt to fill this gap by examining the behavior of liquidity commonality on the NSE equity as well as options markets. We also explore the possible sources impacting liquidity commonality as well as examine the relationship between liquidity commonality and market returns. To the best of our knowledge, ours is the first study to examine commonality for
both stock and options markets and also ours is the first study to examine commonality of an order-driven options market.

Following the model given by CRS (2000), we examine the liquidity commonality of both equity and options markets. The results for market-wide commonality in liquidity provide enough evidence for the existence of liquidity commonality in the context of NSE equity market using intraday as well as daily data based liquidity measures. For the options market, the liquidity commonality is higher than that of the equity market even after controlling for the factors affecting liquidity. The results show a similar type of behavior for both calls and put options. However, the mean estimated option liquidity coefficient is higher for call options compared to put options. Overall, our results are similar to those of quote-driven market study of Cao and Wei (2010).

In case of industry-wide commonality, except for Amihud liquidity measure which has a negative mean industry liquidity coefficient, industry liquidity significantly explains the individual stock liquidity even after controlling for the market liquidity. For all the liquidity proxies, industry liquidity dominates market liquidity in explaining individual stock liquidity, except for depth measure. However, the impact of industry-wide liquidity commonality is weaker than the market-wide liquidity commonality for the sum coefficients. We also find significant evidence for size and portfolio effects on liquidity commonality.

The mean concurrent coefficient for the market-wide transaction frequency is 1.058 and is statistically significant with a t-statistic of 20.39. The number of firms with a positive coefficient is 84.96% and 55.93% of the firms have a significant and positive concurrent coefficient. This is 25% higher than that reported by Brockman and Chung (2002) for the Hong
Kong market. We find that asymmetric information at the market level is stronger than that of the industry-wide asymmetric information. Similarly, for the options markets, we observe that the market-wide commonality in liquidity denoted by the concurrent mean coefficient is 1.72 which is higher than that of 1.05 reported for the equity market. Overall, these results show that asymmetric information is a significant factor contributing to liquidity commonality for the options market.

The results for supply-side determinants of commonality suggest that short-term interest rate and CP Spread are negatively related with weak significance impact commonality as an increase in interest rates decreases supply of limit orders and hence less trading activity leading to a decrease in commonality. However, an increase in broker returns or bank returns impact liquidity commonality positively. The results for portfolio level (small, medium, and large) sources show that none of the sources explain the liquidity commonality of small firms which is quite possible as small firms are less affected by liquidity commonality. The commonality of medium-size firms is explained by short-term interest rate, CP Spread, and bank returns, but the significance is weak. However, the commonality of large firms is explained significantly by broker returns and bank returns and the sign of the coefficients are positive.

For the demand-side determinants of commonality, FII flow is positive and significant with a coefficient of 0.374 and Ln_Exports is negative and significant with a coefficient of 0.147. The reason for a positive impact of FII flow on commonality may be due to the correlated trading activity of FIIs. We also find that ExchangeRate and Ln_Exports variables significantly impacting liquidity commonality; ExchangeRate positively and Ln_Exports negatively. The liquidity commonality of small-firms is not explained by any of the demand-side factors of interest. This may be due to the less degree of liquidity commonality for small stocks.
Our Fama-Macbeth monthly regressions to examine determinants of liquidity commonality for the cross-section of stocks show that stock price, stock liquidity, and firm size proxied by market capitalization impact liquidity commonality positively with high level of significance and stock return volatility impacts commonality negatively with less significance.

The results for index inclusion hypothesis show that for the Spread measure, 33.3%, 60%, 40%, 76%, 86% of the firms of Bank Index, IT Index, Infra Index, Midcap 50 Index, and Nifty Index respectively have a positive and significant commonality coefficients. The commonality coefficient is 29.31% for the non-index firm portfolio. For the Pspread measure, 33.3%, 40%, 60%, 46%, and 80% of the index firms’ concurrent commonality coefficients are positive and significant and it is 26.79% for the non-index based portfolio. For the Depth based measure, the commonality coefficient is positive and significant for 25%, 20%, 32%, 42%, 54% of the five index constituents and it is 13% for the non-index firm portfolio. Also, the ‘Sum’ values are positive and significant for all the liquidity proxies. The results prove that index inclusion hypothesis of Brockman and Chung (2006) that firms included in any equity product trading in the corresponding derivatives market holds good for the NSE equity market.

In general, there is a negative relation between liquidity commonality and market returns. The coefficient is -0.323, but it is insignificant. However, there is a significant impact of large negative returns on liquidity commonality. The interaction dummy has a coefficient of -3.31 which is significant. This emphasizes that the relationship between liquidity commonality and market returns is negative and significant and the impact of market returns on commonality is severe during periods of large negative returns. However, there is no negative relation between liquidity commonality and market returns during periods of high market returns. For small portfolios, market returns though has a negative coefficient does not impact liquidity
commonality significantly. The same is true even for periods of large negative returns. For the medium-size portfolio of stocks, there is a significant impact on liquidity commonality due to large negative returns; the interaction dummy coefficient is -0.428 and the overall impact on commonality is -0.179. Also, for small firms, there is significant increase in commonality due to increase in large market returns as shown by the interaction dummy for large market returns. For the large firm portfolio, the impact of large decline in negative market return states is very high with a coefficient of -0.4.

The results of our study have theoretical and practical implications for the development of financial markets. Given that liquidity impacts asset prices, our evidence that there exists liquidity commonality on equity and options markets also impact asset prices. So, the asset pricing models should incorporate liquidity commonality as an additional factor. The results of this study also have an indirect effect on monetary aspects; how market-wide liquidity shocks impact different types of asset classes. The results of our study are important for individual investors as well as portfolio managers because they trade in portfolio of assets and need higher return for holding securities having commonality in liquidity. Finally, our study helps the policy makers and regulatory bodies in designing appropriate market structure to reduce the impact of liquidity commonality on asset prices.

Future research in this field can be extended to examine the commonality of commodities as well as the bond markets as this will be interesting to see the degree of commonality in these markets. We can also explore other possible sources of commonality on the order-driven market system. As Indian market is dominated by FIIs and domestic
financial institutions, research can be focused in designing novel trading strategies that these institutions should adopt to overcome the risk of liquidity commonality.