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Topic of the Research: Liquidity and Volatility Risk Pricing Structures in Indian Stock Market

ABSTRACT

Keywords: *Liquidity risk, Volatility Risk, Commonality in risk, Capital Asset Pricing model, VaR approach.*

Financial liquidity is an elusive notion, yet of paramount importance for smooth functioning of the financial institutions. Some of the earlier works concluded the existence of commonality in liquidity. In recent years, financial market tensions, especially in the year 2008, have led researchers to measure liquidity variations and their impact on market movements. Along with liquidity risk, the study focuses on volatility risk. The prior literature works found on measuring liquidity risk premium is vast but more or less lay emphasis on comparisons of realized volatility with implied volatility mainly estimated using the Black-Scholes model. Various studies have considered both liquidity and volatility risk significant when considered separately. Importance of volatility and liquidity separately as a systematic risk factor has been attempted by researchers previously, but limited effort has been made to link the two especially in an Indian context.

The study focused on the pricing of liquidity and volatility risk separately as well as in the cross section and determination of common factor of uncertainty which may be helpful for future research in this area especially in context with India and development of a framework for liquidity and volatility risk management. The process of research for the study began with extensive review of Literature to address the research problem i.e. joint pricing of liquidity and volatility risk in Indian stock market, to see the relationships between the two kinds of risks and identifying various measures of liquidity risk and volatility risk. The daily data of 50 Nifty stocks were taken, their Volume, Open, High, Low, and Close, Bid and Ask prices and Daily Volumes. After extensive work of data collection analysis began with pricing of liquidity risk and volatility risk measures for the sample data. Then Joint pricing of liquidity and volatility risk was

conducted for the panel data. After which the data used for the analysis was standardized for better predictions and canonical correlation between liquidity risk and volatility risk was computed. And finally the last step in the study was to measure the degree of commonality in measure specific factors and conclusions have been derived there on. Techniques used for analysis were Descriptives, ANOVA, Factor Analysis, Panel Unit Root, GARCH, Canonical Correlation, VAR, and VECM.

The study used three measures of liquidity risk – AMIHUD, RS and ROLL and RV, GARCH and GK as measures of volatility risk. It was observed that kurtosis level of AMIHUD, RS and RV is relatively high compared to other measures. The stationarity for selected variables AMIHUD, RS, RV and GARCH is achieved at the level and for the rest of the measures ROLL, GK and RETURNS after first differencing. Normality test has been conducted for all the variables. Canonical correlation analysis shows that there is some positive relationship between the measures of liquidity and volatility risk. Also, the pairwise Contemporaneous canonical correlations show that the significant difference in means is observed for the liquidity and volatility measures. The results of granger causality test indicate no significant causality between the selected measures, yet there is a bi-directional causality between the lags of GARCH and AIMHUD. Overall, it can be inferred that volatility affects liquidity and vice-versa.

The inferences point out there exist a high degree of correlation between the common uncertainty factor and individual liquidity risk and volatility risk measures. Shocks to returns are found to be correlated to both the individual and across liquidity and volatility measures. It is derived that shocks to return have predictive power in estimating shock to the liquidity and volatility measures across assets. The returns on individual assets exhibit high levels of persistence.

In the cross sections, no significant pricing phenomenon is observed for the specific liquidity risk factor. Liquidity and volatility act as proxies for a give risk factor. From a policy perspective, the results of the study carry significant implications. The liquidity and volatility risk interface may help the regulators and stock exchanges in structuring the risk levels and their interdependencies.