Impact of Idiosyncratic Risk, Systematic Risk and Investor Sentiment on Liquidity of Stock: The Indian Case

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Abstract: This paper endeavours to investigate the combined impact of volatility, as decomposed into systematic and idiosyncratic risk and investor sentiment on liquidity taking 97 non-financial companies belonging to NIFTY 100 index for the period 2008-09 to 2017-18. Employing panel data technique, it appears that the idiosyncratic risk component of volatility has a significant and positive relationship with illiquidity, while the second component of volatility, viz. systematic risk appears to have no significant relationship with illiquidity. Moreover, the results demonstrate that investor sentiment maintains a significant and negative relationship with illiquidity. However, no significant relationship is found between illiquidity and firm size. The empirical findings have direct implications for stock exchange regulators and corporate managers of Indian non-financial listed firms.

1. Introduction

Volatility and liquidity are the two characteristics of a stock that receive due importance in financial literature along with the returns of the same. Volatility is the variation of returns for a particular security or market index. The presence of high volatility weakens the performance of the financial market, imposing an adverse impact on economic performance. Increased risk of investment in equity and cost of fund to firms explains volatility in the stock market. Risk and volatility are two terms that are normally used interchangeably. Aït-Sahalia *et al.* (2012), Amihud and Mendelson (2005), and Chakravarty and Holen (1995) document in their papers that liquidity, as well as volatility, influences risk management, asset pricing, and portfolio construction.

As argued by Keynes (1930), an asset is more liquid if it can be monetized promptly and without risk. Thus, an asset is liquid if traders can swiftly buy or sell a large volume of it with a negligible price impact. 'Illiquidity' is just the reverse of the liquidity of a stock. Here, assets are not being branded into liquid or illiquid. Rather, it is assumed that on a continuum all assets are illiquid, only the degree of liquidity is varying (Damodaran, 2005). Amihud *et al.,* 1980; Glosten *et al.,* 1985 opined that illiquidity is generated out of selection costs and inventory costs. The cost of illiquidity is nothing but the transaction cost. Thus, less liquid assets bear higher transaction cost (as per cent of asset value) than more liquid assets. Conceptually, illiquidity denotes a situation where the buyer pays a premium, the seller admits discount while executing a market order and when the price is impacted by the order flow. As illiquid stocks are difficult to trade, they are considered a risky asset, contributing to the fact of considering illiquidity as a risk. In continuation of this concept, as there is an established positive association between risk and return, and also a negative (positive) association between return and liquidity (illiquidity), a positive (negative) relationship between illiquidity (liquidity) and risk is also expected. Total risk is decomposed into systematic risk (market risk or non-diversifiable risk) and idiosyncratic risk (unsystematic risk or diversifiable risk).

The present study tries to investigate the impact of idiosyncratic risk, market risk and investor sentiment on the liquidity (measured by Amihud (2002)'s illiquidity) of stock. It may be remembered that any relationship found taking this measure would have a reverse relationship with the liquidity.

2. Review of Literature

2.1. Liquidity and Volatility

Focusing on the strand of literature that addresses the relationship between liquidity and volatility, empirical studies have found that information opacity ignites volatility and impacts liquidity. For example, Kyle (1985) through his microstructure approach has documented that informational asymmetry amongst investors gives rise to the volatility of price, categorizing these people as noise traders, insiders and market makers. He has argued that the co-existence of this kind of investors having different information sets establishes an affirmative linkage between transaction volume and price change or price impact. Foster *et al.* (1990), Ho *et al.* (1981, 1983), Copeland *et al.* (1983), Stoll (1978a, 1978b) and Amihud *et al.* (1980) have observed that liquidity and asset volatility are associated negatively. They put forward that information asymmetry and adverse selection costs are two plausible causes of this association. Interestingly, Khine *et al.* (2011) in a study observed that higher trading activity is linked with lower liquidity and higher levels of volatility for smaller stock portfolios. They claimed that trading activity is a crucial element in defining the link between liquidity and volatility. In comparison to developed countries, Domowitz *et al.* (2001) observed that developing markets exhibit lower levels of liquidity, as measured by transaction costs and higher levels of volatility. Similar to Amihud *et al.* (1980), one early study showed that liquidity is reflected by the volatility of the stock, and deep markets are less volatile than the thin ones (Cohen *et al.*, 1976). Securities exchange may be considered as an example of a deep market. It is a form of market in which a huge number of shares can be traded (either purchased or sold) without the price changing dramatically. On the other hand, thin markets are over the counter

markets. It's worth noting, however, lesser price volatility is the most important aspect of deep markets. Nevertheless, thin markets are much more volatile in both price and volume. Extending the liquidity literature, Chordia *et al.* (2000) found that price levels, volume, and volatility have significant associations with liquidity. They claimed that besides stock volatility, dispersion in liquidity is driven by price level and volume. Within this framework, Garleanu *et al.* (2009) argued that large discontinuous changes in prices are difficult to avoid, unlike diffusive changes; because such changes are smooth, continuous and small changes in price. Market makers always take the risk of price changes to their stock so, bid-ask spreads are fixed to recompense them for holding such inventory risk (Stoll, 1978a; Amihud & Mendelson, 1980; Ho & Stoll, 1981; Ho & Stoll, 1983). As such, jump risk, which is caused by abrupt price swings, is difficult to avoid because dynamic replicating methods are impractical in incomplete markets, suggesting a positive association between jump volatility and illiquidity. In the same line, empirical evidence (Dan Amiram *et al.*, 2016) showed that jump volatility and illiquidity are associated positively; moreover, the study found that diffusive volatility maintains a negative association with illiquidity. In the Korean sample, Lee Jieun and Chung KeeH (2014) observed that an unanticipated increase in market volatility is inversely related to liquidity. They put forward that in stock market, trade proportion plays a pivotal role in establishing association between liquidity and volatility. In a similar vein, Chung and Chuwonganant (2016) found a significant association between market volatility and liquidity in the Korean sample. Acknowledging Lee Jieun and Chung KeeH (2014), they added stock returns are prospective to change with the different type of traders, like an individual, domestic institutional or foreign institutional. More recently, Kulshrestha *et al.* (2019) observed that in the case of small and large indexed Indian funds, in an environment of low volatility, liquidity and volatility are not associated with each other. On the contrary, they found an adverse relationship between the former in the case of mid-cap indexed funds. Nevertheless, in an environment of normal volatility for large and mid-cap indexed funds, they have reported a affirmative linkage amid liquidity and volatility. Conversely, a negative link has been found in the case of small-cap indexed funds. In an environment of high volatility, they observed an adverse association amid liquidity and volatility across all the indexed funds. Considering informed stealth trading among a large section of unaware liquidity traders, *Admati et al.* (1988), and Barclay *et al.* (1993) documented a significant and positive association between volatility and liquidity, supporting the Stealth trading theory. In the same line, Menyah *et al.* (1996), Stoll (1978b) and Tinic (1972) have observed an affirmative relationship between volatility and liquidity. For larger equities, like equities traded in the London Stock Exchange, if trading activity increases, volatility also increases. Thus, for large firms' positive relationship may be established between volatility and liquidity. Similar to Tinic *et al.* (1972), Khine *et al.* (2011) observed that increased trading activity is constructively connected to higher liquidity and more variable returns, and this result is relevant for the largest firm-size portfolio.

2.2. Liquidity, Market Risk and Idiosyncratic Risk

Researchers have very often divided the aggregate volatility of stock into idiosyncratic risk or firm-specific risk and market risk or systematic risk for understanding their impacts on liquidity. Rasin Erik and Stefanovski Marjan (2013) in their study on European equity have found a favourable relationship

between illiquidity (measured by Amihud illiquidity) and idiosyncratic risk; however, they observed that liquidity (measured by Amivest ratio) and idiosyncratic relationship maintains an adverse relationship. Since European equity can be clustered among developed economies, the result provides a trace that in a developed economy there is an affirmative relationship between idiosyncratic risk and illiquidity. Regarding emerging markets, Kumari *et al.* (2017) showed that idiosyncratic volatility is more noticeable in India. Moreover, they opined that firm-specific features, viz. ROA, size of the firm, the book-to-market ratio have a significant association with cross-sectional return variations of firms. They also documented that the firm size, momentum, book-to-market ratio and cash flow to price ratio are potential factors in determining the liquidity-idiosyncratic risk relationship.

In general, it can be said that there should be a positive (negative) association between idiosyncratic risk and illiquidity (liquidity). The reason behind this is, as the liquidity of stock increases, its return tends to decrease, resulting in a decrease in the total risk of a firm. Now as there is an affirmative connection between risk-return, idiosyncratic risk being a part of the total risk of a firm tends to decline along with a decrease in return of a firm because of upward movement of liquidity of the stock. So, a negative (positive) relationship should be there between idiosyncratic risk and stock liquidity (illiquidity). In a developed market (Erik Rasin *et al.*, 2013) and emerging economy (Kumari *et al.*, 2017) such a relationship is observed.

2.3. Liquidity and Investor Sentiment

Investor sentiment is another important concern of any stock market. Investment decisions of a particular kind of investors, such as noise traders are not guided by the fundamental information prevailing in any market. Their investment decisions are guided by emotions or psychological feelings towards a particular stock which is also known as investor's sentiment. An investor's sentiment is also known as market sentiment. Researchers have found the surprisingly robust result that investor sentiment and liquidity are significantly associated. For example, more recently, Hu *et al.* (2019) showed that investor sentiment has a favourable impact on market liquidity. In a similar vein, Liu Shuming (2015) observed that there is a noticeable positive association between investor sentiment and stock market liquidity, suggesting that when sentiment indices rise, the stock market becomes more liquid and trading becomes viable. In emerging economies, Debata *et al.* (2017) documented that foreign participants' investment sentiment has a strong beneficial impact on liquidity. Extending the research by Debata *et al.* (2017), Kumari (2019) has observed that institutional investor sentiment also influences liquidity and volatility in the stock market of an emerging economy like India. They claimed that investors' trading behaviour towards a particular stock is influenced by noise impact, overconfidence impact and disposition impact which influence market sentiment, and thereby affect liquidity in the stock market. Within this framework, Baker *et al.* (2004) put forward that investor sentiment becomes higher as liquidity in the stock market improves through a large number of irrational market makers. As irrational market makers either over-react or under-react to the informational content of the order flows, price impacts go down resulting in higher liquidity in the stock market. In the same line, Shiller (2000) are of opinion that bullish investor sentiment may influence liquidity if irrational market makers are present in the stock market.

Conversely, Huberman and Halka (2001) and DeLong *et al.* (1990) have argued that investors' trading behaviour and trading patterns guided by noise impact can affect market sentiment which, in turn, can influence liquidity. In this context, Shleifer and Summers (1990) put forward that there can be a deviation of prices from the fundamentals due to noise trading impact that ultimately results in higher volatility and hence a higher cost of trading for the market participants which, in turn, can negatively influence the market liquidity. In support, Statman *et al.* (2006) added that investors' trading behaviour guided by overconfidence can also influence liquidity through its impact on market sentiment. This view is consistent with the findings of Odean (1998) that observed stock market liquidity increases through a higher level of overconfidence in the market which is marked by higher investor sentiment. Similar to Odean (1998), Shefrin and Statman (1985) documented that investors' trading behaviour is influenced by disposition impact, which in turn shakes market mood and, as a result, stock market liquidity. On the contrary, Sen and Ghosh (2006) found that the above two constructs are associated negatively; however, the study has not found any relationship between liquidity and trading activity.

In general, investor's sentiment and illiquidity (liquidity) should have a negative (positive) relationship. Illiquid stocks possess higher transaction costs for which investors may be less attached to illiquid stocks. So, the higher the illiquidity, the lower is the sentiment attached towards a particular stock by an investor which is also confirmed by the studies mentioned above.

From the above facts and figures, it is mostly observed that studies related to liquidity and volatility have been conducted so far in developed countries. Moreover, such studies have been conducted by either taking time-varying properties or cross-sectional aspect. But no such studies are carried out in the panel framework. The literature study also reveals that there are few studies in the Indian context that investigated the combined impact of idiosyncratic risk and market risk on liquidity or illiquidity. However, it is also perceived that investor sentiment performs a very crucial part in influencing the liquidity of stocks. Thus, the present study seeks to address whether systematic risk, idiosyncratic risk, and investor sentiment have an impact on liquidity in the Indian context.

3. Objective and Hypotheses of the Study

3.1. Objective

This article endeavours to investigate the combined impact of volatility, as decomposed into systematic and idiosyncratic risk and investor sentiment on liquidity in India.

3.2. Hypotheses

Based on the above literature review and objective, the following hypotheses are framed:

H_1: Liquidity (Illiquidity) of stock is negatively (positively) affected by Idiosyncratic risk.

H_2: Liquidity (Illiquidity) of stock is negatively (positively) influenced by market risk

H_3: Liquidity (Illiquidity) of stock is positively (negatively) influenced by investor sentiment.

4. Methodology

4.1. Data and Sample

All the required data have been piled up and compiled from the "Capitaline" database. The sample size of the study consists of 97 non-financial companies belonging to the NIFTY 100 index, representing different sectors. The study covers a time-span of ten years, commencing on April 1, 2008, and ending on March 31, 2018, and is carried out on uniformly arranged panel data as per financial years, resulting in the exclusion of three companies due to different financial years. The cut-off date for selecting the sample is 31st March 2018.

4.2. Research Variables

In this study, three independent variables have been used which are Idiosyncratic Risk, Market Risk and Investor Sentiment. The liquidity of the stock, measured by Amihud (2002) 'illiquidity 'has been considered as the dependent variable. Turnover or sales representing Firm Size (denoted as FS) has been taken as the control variable.

4.2.1. Market Risk and Idiosyncratic Risk

Total risk has been decomposed into two parts.

Total risk = Systematic or market risk + Idiosyncratic or firm-specific risk

$$\sigma_i^2 = \beta_i^2 \sigma_M^2 + \sigma^2(e_j)$$

Systematic Risk (SR) is taken as the product of squared beta $\left(\beta_i^2\right)$ and Variance of market return $\left(\sigma_M^2\right)$, where beta (β) is the slope of the Security Market Line (SML). In the present study weekly stock returns have been regressed on the weekly market return (the market is represented by the NIFTY 100 index).

On the other hand, to calculate Idiosyncratic Risk (IR), simple regression has been run taking stock return as the target variable and market return as the predictor variable over 52 weeks or 1 year for each company's stock. The residuals of the regression have been squared to get the variances $[\sigma^2(e_j)]$ which are the Idiosyncratic Risk for each stock for each year.

4.2.2. Investor Sentiment (IS)

Investor Sentiment has been calculated in the following manner:

The volume of stock for a particular year $= \sum_1^n Vol_{i,t}$

Where Vol=Volume of stock, $i = i^{th}$ stock and t=1,2…………52 (As 1 year is equivalent to 52 weeks).

Investor's sentiment $= \ln (Vol_t) - \ln(Vol_{t-1})$.

According to Baker *et al.* (2004), the trading volume trend, which is defined as an increase in trading volume per unit of time, can be used to measure investor sentiment on specific equities. The

trading volume trend is a preferable sentiment metric as compared to the level of the trading volume; because it arrests the traces of overconfident investors on the market and mitigates the issue of mixing investor sentiment information with liquidity information.

4.2.3. Liquidity (Illiquidity)

In this study, Amihud (2002)'s measure of 'illiquidity' has been used as the proxy of liquidity of the stock (denoted as ILL**)**. Amihud's illiquidity is the reciprocal of stock liquidity and is defined here as the average ratio of the weekly absolute return to the volume on that week, $|R_{iyw}|/VOLW_{iyw}.R_{iyw}$. is the return of stock i on week w of year t and $VOLW$ is the weekly volume. The above ratio gives the absolute (percentage) price change per rupee of weekly trading volume or the weekly price impact of the order flow.

Thus Illiquidity $(ILLIQ_{iy}) = 1/W_{iy}\,\Sigma_{t=1}^{Wiy}\,|R_{iyw}|/VOLW_{iyw}$

Where W_{iy} is the number of weeks for which data are available for stock i in year y. To get a meaningful result of Illiquidity the above figure is multiplied by 10^7.

4.3. Methods

4.3.1. Unit Root Test

To look over the stationarity of panel data and the order of integration, it is necessary to carry out the unit root test.

For this purpose Im, Pesaran and Shin (IPS, hereafter) test has been chosen. IPS initiates by postulating a distinct ADF regression for each cross-section with individual effects and no time trend:

$$\Delta y_{it} = \alpha_i + \rho_i\, y_{i,t-1} + \sum_{j=1}^{p_i}\beta_{ij}\Delta y_{i,t-j} + \varepsilon_{it} \tag{1}$$

where $i = 1, \ldots, N$ and $t = 1, \ldots, T$

After estimating the separate ADF regressions, the average of the t-statistics for p_i from the individual ADF regressions, $t_{iTi}(p_i)$ is calculated:

$$\bar{i}_{NT} = \frac{1}{N}\sum_{i=1}^{N} t_{iT}(p_i\,\beta_i) \tag{2}$$

Next, the t-bar is standardized that converges to the standard normal distribution as N and T →∞. If the W-t-bar statistic is significant there is no unit root.

4.3.2. Panel Regression

For the first-hand investigation, three options are available. a) Pooled OLS model, b) The Fixed Effects Model (FEM) and c) The Random Effects Model (REM).

a) In the Pooled OLS model, 970 observations (97*10) can be pooled for estimating a pooled regression:

$$ILL_{it} = \beta_1 + \beta_2 IR_{it} + \beta_3 SR_{it} + \beta_4 IS_{it} + \beta_5 FS_{it} + \mu_{it} \tag{3}$$

Where i (company) = 1, 2...97 and t (time) = 1, 2,3,4,..,10. In this model, the regressors are assumed to be non-stochastic. Moreover, if the regressors are found to be stochastic, they are uncorrelated with the error term (μ_{it}).

b) In the Fixed Effects Model, similar to the Pooled OLS Model, 970 observations will be pooled, but each cross-section unit (in this case, companies) will have its own dummy variable (intercept term). The model can be carved in the following equation:

$$ILL_{it} = \beta_{1i} + \beta_2 IR_{it} + \beta_3 SR_{it} + \beta_4 IS_{it} + \beta_5 FS_{it} + \mu_{it} \tag{4}$$

The absence of subscript 't' in the intercept term β_{1i} suggests that the intercepts of each of the 97 company's do not differ over time.

c) In the REM, it is assumed that the intercept values are drawn randomly from a larger population of companies. In the present case, the sample of 97 companies have been drawn from a universe of similar companies, and the intercept (β_1) has a shared mean value. The individual differences in each company's intercept value is reflected in the error term (ε_i). Hence, the model can be represented as:

$$ILL_{it} = \beta_1 + \beta_2 IR_{it} + \beta_3 SR_{it} + \beta_4 IS_{it} + \beta_5 FS_{it} + \mu_{it} + \varepsilon_i$$
$$= \beta_1 + \beta_2 IR_{it} + \beta_3 SR_{it} + \beta_4 IS_{it} + \beta_5 FS_{it} + w_{it} \tag{5}$$

Where, $w_{it} = \mu_{it} + \varepsilon_i$. Here ε_i is the individual specific or cross-sectional specific error component and μ_{it} is the combined time series and cross-sectional error component.

The Breusch Pagan Test is used to see if there are any random effects.

$$H_0 : \sigma_\mu^2 = 0$$

The test statistic is $LM = \dfrac{NT}{2(T-1)} \left(\dfrac{\Sigma_{i=1}^{N} (\Sigma_{t=1}^{T} e_{it})^2}{\Sigma_{i=1}^{N} \Sigma_{t=1}^{T} e^2 it} - 1 \right)$

LM statistics has a Chi-square distribution with one difference. As a result, if the calculated value of LM is significant, H_0 will now be rejected and random effects will ensue.

The Hausman Test is used to distinguish between fixed and random effects.

The Hausman statistics have a χ^2 distribution and is calculated as follows:

$$H = (b - B)' (V\_b - V\_B)^{-1} (b - B)$$

Where;

B = is the coefficient vector from the consistent estimator.

B = is the coefficient vector from the efficient estimator.

V_b = is the covariance matrix of the consistent estimator.

V_B = is the covariance matrix of the efficient estimator.

H_0 : Difference in the coefficient not systematic.

If the H statistics is significant the H_0 is rejected and the fixed effect model is taken and vice versa.

5. Data and Analysis

5.1. Descriptive Statistics

Table 1 reports the descriptive statistics of variables used in this study. The number of firm-year observations is 970 for each variable. The mean value of IR is 0.0486 with a maximum of 0.1385 and a minimum of 0.0058. The SR ranges from a minimum of 2.95e-14 to a maximum of 0.0012, with a mean of 0.0001. The IS varies from -2.3374 to 2.8726 with a mean value of 0.1274. The mean value of ILL is 6.5639 with a maximum of 1573.2110 and a minimum of 3.95E-09. In terms of the control variable, the mean FS is 22595.7200 with a maximum of 516681.1600 and a minimum of 158.5700.

Table 1: Descriptive Statistics

	ILL	*IR*	*SR*	*IS*	*FS*
Mean	6.5639	0.0486	0.0001	0.1274	22595.7200
Standard Error	2.0102	0.0005	0.0000	0.0215	1941.2559
Median	0.1283	0.0448	0.0000	0.0737	4102.800
Standard Deviation	62.5982	0.0180	0.0001	0.6703	60450.7100
Sample Variance	3918.5410	0.0003	1.00e-08	0.4493	3.65e+09
Kurtosis	446.1471	5.0577	35.7927	5.1690	31.7769
Skewness	19.5970	1.1720	4.6184	0.5795	5.0606
Minimum	3.95e-09	0.0058	2.95e-14	-2.3374	158.5700
Maximum	1573.2110	0.1385	0.0012	2.8726	516681.6000
Count	970	970	970	970	970

Source: Authors' tabulation

5.2. Correlation Analysis

To see the degree of association the correlations between the variables have been calculated and results are reported in Table 2. The results show that there is a positive correlation between illiquidity and both IR and SR. Conversely, a negative association is there between illiquidity and IS. However, there is no degree of association between illiquidity and FS.

<div align="center">**Table 2: Correlation Matrix**</div>

Variables	ILL	IR	SR	IS	FS
ILL	1				
IR	0.1687*	1			
SR	0.1041*	0.4220*	1		
IS	-0.0901*	0.2105*	0.0370	1	
FS	-0.0373	-0.0277	-0.0277	0.0057	1

Source: Authors' tabulation

Notes: * Significant at 1% level, ** Significant at 5% level.

5.3. Unit Root Test

Table 3 presents the results of the unit root test for the variables used in this study. The W-t bar statistics for all the variables are significant at the 1% significant level. Hence, all variables are stationary at level or I(0).

<div align="center">**Table 3: Unit Root Test Results**</div>

Variables	W-t-bar statistic	p-value
ILL	- 96.1503*	0.0000
IR	-12.4577*	0.0000
SR	-1.3e+02*	0.0000
IS	-11.7855*	0.0000
FS	-2.2463*	0.0123

Source: Authors' tabulation

Notes: * Significant at 1% level

5.4. Regression Results

Estimated results of three regression models (equations 3, 4 and 5 respectively) have been presented in Table 4. A close look at the figures reported in Table 4 reveals that there are consistent results for the significance of the coefficients are concerned. One can observe that ILL is positively influenced by IR and conversely, IS has a negative impact on ILL. All three models are agreed that SR and FS do not influence ILL. Hence, the results are robust.

To choose the best model among these three two steps have been followed. Breusch Pagan Test shows that (Table 5) LM Statistic (13.22) is highly significant. Therefore, Pooled OLS Model is rejected. Finally, the Hausman Test shows that (Table 6) H statistic (4.29) is not significant. Hence, the null hypothesis cannot be rejected and the Random Effects Model would be the better model among the Random Effects Model and the Fixed Effects Model.

Table 4: Regression Results

Models

Variables	Pooled OLS	FEM	REM
IR	625.6187*	687.8603*	635.8539*
	(5.06)	(4.53)	(4.92)
SR	20191.33	25658.63	20694.1
	(0.93)	(1.14)	(0.96)
IS	-12.06179*	-13.7194*	-12.59505*
	(-4.01)	(-4.56)	(-4.27)
FS	-.0000184	.0001747	-.000012
	(-0.56)	(1.21)	(-0.32)
Constant	-23.01664*	-30.49202*	23.6014*
	(-3.83)	(-3.61)	(-3.65)
R^2 : within	-	0.0455	0.0436
: between	-	0.0062	0.0629
: overall	0.0461	0.0256	0.0461
Adj. R^2	0.0421	-	-
F	11.66*	10.35*	-
Wald chi2(4)	-	-	45.66*
N (group)	970 (97)	970 (97)	970 (97)

Source: Authors' tabulation
Notes: * Significant at 1% level. Figures in the parenthesis denote t-value (FEM) or z-value (REM).

Table 5: Breusch and Pagan Lagrangian Multiplier Test for Random Effects

	Var	sd = sqrt(Var)
ILL	3918.541	62.59825
e	3536.562	59.469
u	217.3618	14.74319

Test: Var (u) = 0
chibar2(01) = 13.22*

Source: Authors' tabulation
Notes: * Significant at 1% level.

Table 6: Hausman Test Results

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fe	Re	Difference	S.E.
IR	687.8603	635.8539	52.0063	79.6835
SR	25658.63	20694.1700	4964.4670	6351.2260
IS	-13.7194	-12.5950	-1.1243	0.5865
T	0.0001	-0.0000	0.0001	0.0001

chi2(3) = 4.29
Prob>chi2 = 0.2316

Source: Authors' tabulation

6. Results and Discussion

The acceptance of REM proposes that the difference in coefficients is systematic to explain that μ_i is uncorrelated. The results shown in Table 4 indicate that there is a significant positive relationship between Idiosyncratic Risk (IR) and Illiquidity (ILL). The finding is supported by the coefficient (635.8539) and the p-value (0.000). The result strongly accepts H_1. Since the present study finds a positive association between idiosyncratic or firm-specific risk and the illiquidity of stock, it can be concluded that the illiquidity of stock tends to increase along with the upward movement of firm-specific risk. This result is in line with the findings of Sen and Ghosh (2008b). Sen and Ghosh (2008b) have reported some significant relationships between accounting variables and liquidity. Therefore, a reduction in the firm-specific risk will boost the liquidity of the stock. The above table also highlights that the coefficient of Systematic Risk (SR) is positive (i.e., 20694.17) supported by a p-value of 0.336 indicating no statistically significant relationship between Systematic Risk (SR) and Illiquidity (ILL) of stock. Sen and Ghosh (2008a) find a joint positive effect of macroeconomic variables on aggregate market liquidity. However, no relationship is found in the present study between the Systematic Risk (SR) and Illiquidity (ILL) of stock. Thus, the result cannot reject the null of H_2. From the above table, it is also apparent that the coefficient of Investor Sentiment is negative(i.e.-12.59505) supported by a p-value of 0.000 indicating a statistically significant negative relationship between Investor Sentiment(IS) and Illiquidity(ILL) of stock indicating that the illiquidity of the stock decreases due to a favourable Investor Sentiment towards a stock. Hence, positive Investor Sentiment is a real liquidity booster. Thus, the result strongly accepts H_3. Furthermore, no relationship is found between the control variable and the dependant variable signifying that firm size is not a key factor in this study as the sample consists of the largest 97 firms in the market.

7. Conclusion

The present study is focused on how the firm-specific risk, i.e., idiosyncratic risk and market risk together influence the illiquidity of stock in the Indian share market and also the psychology of investors towards a particular stock, i.e., investor sentiment affects the illiquidity of stock in the Indian stock market.

This study hypothesized that higher illiquidity is associated with higher risk indicating a positive association among idiosyncratic risk, market risk and illiquidity because of the direct relationship between risk and return. On the other hand, theoretically, there should be a negative (positive) relationship between illiquidity (liquidity) of stock and Investor Sentiment because higher transaction cost is involved in case of illiquidity of stock and due to much higher cost of trading, investors show the lesser amount of willingness towards that particular stock indicating a negative association between illiquidity and investor sentiment.

The results of this study indicate that illiquidity has a positive and negative association with idiosyncratic risk and investor sentiment respectively, finally accepting H_1 and H_3. However, the study does not find any significant relationship between Illiquidity and market risk.

This study has some theoretical and practical implications. First, since the firm-specific risk is diversifiable, so measures may be taken to reduce this kind of risk to boost liquidity. Second, investor sentiment has shown to be playing a pivotal role in decreasing illiquidity and thus improving liquidity;

the importance of 'Analysts Coverage' and reputation building cannot be ignored. Further study in this respect may open new areas in research. Finally, the present study does not find any association between liquidity and firm size. A study might be very interesting taking a sample from midcap shares in this regard.

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