Liquidity changes around bonus and rights issue announcements: Evidence from manufacturing and service sectors in India

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Abstract

This paper examines the stock price liquidity changes before and after the bonus and rights issue announcements. Liquidity measured using raw trading volume ratio, relative trading volume ratio and liquidity ratio suggest that raw trading volume and relative trading volume have decreased around bonus and rights announcements, though insignificantly. Market depth, as measured by the liquidity ratio, has significantly decreased after the bonus and rights issue announcement in the Indian stock market. There is evidence of negative and significant decrease in stock price liquidity for bonus and rights issue announcements similar to other issue announcements in US, UK and other emerging economies. The results support cash substitution hypothesis and signaling theory but rejects liquidity hypothesis with respect to bonus and rights issue announcements.

Keywords: Bonus Issue, Rights Issue, Signaling Theory, Liquidity, Cash Substitution hypothesis

JEL Classification: Code: G3; G32

1. INTRODUCTION

The process of information dissemination and interpretation in securities markets is very complex and mostly unobservable. While changes in prices and the amount of trading that takes place at the market level provide evidence of information processing, kim and Verrecchia (1991), demonstrated that these are not sufficient to describe completely the dissemination of information and its interpretation by investors. The information content of public disclosures could be observed through stock market reactions and trading volume changes around the date of announcement. Beaver (1968), Ball and Brown (1968), Morse (1981), and Bamber and Cheon (1995) argue that earnings announcements accompanied by high trading volumes and abnormal returns around the announcement window convey more information to investors than announcements which generate low trading volumes and insignificant stock returns. Stock market reaction represents investors' belief about the firm value and trading volumes indicate investor's behavior on firm's shares. Both measures aim at estimating public announcements information content and information asymmetry. Trading volume is also considered as a measure of stock market liquidity given that it captures the willingness of some investors who hold shares to sell, and the willingness of others to buy (Bamber, 1987).

The liquidity changes around bonus issue may suggest that issue announcement convey something special about issuing firms to investors.Investors respond to the new information so that they trade more frequently. If the new information is conveyed in a definite manner, this would help market participants reach an agreement on the value of issuing firms. In this case, informational (or speculative) investors would find no advantage of trading the stock. Consequently, trading activity of the stock comes primarily from liquidity traders who indeed either need cash or have surplus cash. Hence, it is likely to see a decrease rather than an increase in liquidity of issuing firms.

Moreover, an increase in number of shares available for trade implies the ease of buying/selling the stock. This would reduce transactions costs for an investor. Hence, stock prices should reflect this incremental saving in transactions costs due to liquidity improvements. Several studies such as Beneish and Whaley (1996), Lynch and Mendenhall (1997), and Elyasiani and Goldberg (2004) report that stock prices respond to the liquidity improvement when the stock is announced to be added to S&P 500 list or transferred from NASDAQ to NYSE and AMEX and there is a significant improvement in liquidity when a firm issues new shares.

The reason behind increased and / or decreased liquidity around bonus and rights issue announcement can be attributed to the fact that with the announcement of a seasoned capital issue, there is information dissemination from the firm to the investors. This type of news dissemination reduces information asymmetry between the firms and the investors. News release by firms aim at reducing the information gap from which informed investors benefit, because of reduced information asymmetry. Empirical studies have found that news dissemination is likely to signal material information to the market.

The review of literature shows that is there is evidence of increase in liquidity (Denis and Kadlec (1994), Han (1995), Noronha et al. (1996), Kothare (1997), Eckbo et al.(2000) and decrease in liquidity as documented by Lee et al. (1993), Lease et al.(1991), Moel et al. (2001), Forester and Karolyi (1998), and Brockman and Chung (2003). An equity issue is thought to increase liquidity as it leads to increased number of shareholders and a generally wider market with more traders potentially interested in trading the security by increasing the proportion of outstanding shares traded which thereby translates into greater overall liquidity.

With respect to seasoned capital issues, Denis and Kadlec (1994) and Eckbo et al.(2000) have found increase in liquidity

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while Franz et al. (1995), Lease et al.(1991) and Ho and Stoll (2002) have documented decrease in liquidity. Similarly, with respect to share repurchase announcements, Barclay and Smith (1988) and Brockman and Chung (2003) provide evidence of decrease in liquidity. Miller and McConnell (1995) assert that there is a significant change in liquidity due to share repurchase announcement. Stock split announcement has resulted in increase in liquidity (Han 1995) and decrease in liquidity (Copeland (1979). In India, the effect of announcement of abolition of Badla system on liquidity has been examined by Berkman and Eleswarapu (1998).

Morse (1981) shows that stock market reaction and trading volume change significantly the day prior to and the day of quarterly earnings announcements in the Wall Street Journal. Consequently, information asymmetry is likely to increase before the day of news releases. Furthermore, according to Kim and Verrecchia (1994), the adverse selection problem can still persist after the announcement date because investors could have different abilities to process the news. These different interpretations are likely to induce a high level of information asymmetry after the announcement date. Ball and Kothari (1991) report that decreasing liquidity after rights issues is caused by increasing ownership concentration following a rights issue. However, Adouglu (2005) found no significant change in liquidity around rights issue announcement and rights accompanied with bonus issue announcement.

The literature review shows that there is a negative announcement effect in the US, UK and European countries. In many emerging markets, a right offering is the primary flotation method. Slovin et al (2000) reports negative returns for rights offerings in UK. Similarly, Gajewski and Ginglinger (2002), and Marsden (2000) find negative announcement effects for France and New Zealand respectively. While, in Switzerland, Japan, Malaysia, Korea, Greece, Germany and Norway, several studies report positive announcement effects (e.g., Loderer and Zimmermann, 1988; Kang and Stulz, 1996; Salamudin et al., 1999; Tsangarakis, 1996; Gebhardt et al. (2001) Bohren et al., 1997). The question of how liquidity changes with bonus and rights issue announcements remains unresolved since most of the studies have focused on the effect of other announcements on liquidity and Adouglu (2005) does not find significant change for rights issue announcement. Moreover, an avenue that has not been explored in the previous research is potential sector wise differences of liquidity effects associated with bonus and rights issue announcements. In this paper, an attempt has been made to examine the unresolved liquidity issue and the focus is to examine if there is a liquidity change for bonus and rights issue announcement and examine if can be attributed to different levels of information asymmetry in different industries.

This study distinguishes itself from the previous studies in the following ways: First, it examines changes in liquidity around bonus and rights issue announcement in an emerging market-India, which is one of the most lucrative market from the point of view of investors. Therefore, it offers researchers an excellent arena to examine how an emerging market behaves in contrast with mature markets. This study is built upon these lines in anticipation of extending our visions of how financial markets evolve. Secondly, the study emerges to be possibly the first to investigate whether the stock market reacts to the change

in liquidity around bonus and rights issue announcements for different industrial sectors. This study also highlights upon the changes in liquidity across industries, which is beneficial from the point of view that one can analyze the changes in liquidity brought in because of a firm belonging to a specific industry class. This issue is of practical interest in that if changes in liquidity are related to issuing methods, managers can exert their control on the choice of issuing methods depending on their target of liquidity changes from announcement of bonus and rights issues. A significant change in liquidity means a change in execution costs from an investor's point of view, and this change can affect the cost of capital of the announcing firm. A prevalent view in the marketplace is that firm's managers increase the adverse-selection cost and thus decrease liquidity. Thirdly, the measures used to examine liquidity (raw and relative trading volume and liquidity ratio) provide a useful insight towards the market depth which is not captured by other measures such as bid / ask spreads. Moreover, this study uses parametric as well as non parametric tests to examine the significant changes in liquidity around bonus and rights issue announcement which helps in enhancing the robustness of the study. Parametric tests such as t test and non parametric tests such as Sign test and Wilcoxon signed rank test has been used to analyze the liquidity changes which is not widely used in other studies.

This study is an attempt to establish a link between seasoned capital issue announcements and stock price liquidity. This link is significant because we are able to document that the bonus and rights issue announcement will affect the liquidity and it conveys different signals to the market. The results of the study show a significant decrease in the liquidity after the bonus and rights issue announcement. Trading volume, relative trading volume and liquidity ratio decreased after the bonus and rights issue announcement. Market depth, as measured by liquidity ratio has significantly reduced for all the industrial sectors in bonus and rights issue announcements.

This paper is organized as follows. Section 2 explains the data, hypothesis and methodology used in the study. Section 3 describes the results obtained. Finally, Section 4 summarizes the findings and brings out the implications of the study.

2. DATA AND METHODOLOGY

The data pertaining to companies in different industry classes that made bonus and rights issue announcement for the period from January 2000 to January 2010 has been taken from PROWESS 3 database of CMIE. The announcement dates for bonus and rights issues were extracted from the PROWESS database, BSE website and NSE website's news abstract. Extreme cases have been removed where bonus ratio is greater than 5:1 (five for one) or the insignificant issues where the ratio is less than 1:4 (one for four). In case of firms with multiple bonus issues we have included other issues only if it is occurring after four years. Finally we excluded firms that do not have financial results for previous financial year in relation to equity bonus distribution. The bonus issues that met the following criteria are chosen for the study: The bonus issue had to be an issue of new ordinary fully paid securities and not issued with a rights issue or bonus option issue; only the latest bonus issue made by a company has been selected for the purpose of the study. If more than one bonus issues are there, only the last one is taken; daily closing stock price data for the company over the period from 150 trading days before

to 30 days after the announcement dates are available from the database; the bonus issue must not have been issued in part or whole as a consideration in a merger or acquisition or reconstruction; the bonus issue date is to be reported in any of the leading financial dailies-Economic times, Business line etc.

For the rights issue, the firms that fulfilled the following criteria were selected for the study; the rights issue had to be an issue of new ordinary fully paid securities and not issued with a bonus issue or any other issue; only the latest rights issue made by a company has been selected for the purpose of the study; if more than one rights issue is there, only the last one is taken; daily closing stock price data for the companies over the period from 150 trading days before to 150 trading days after the rights issue announcement date after the announcement dates are available from the database; the rights issue date is to be reported in any of the leading financial dailies-Economic times, Business line etc.

In the case of bonus issue announcement, out of total 108 announcements in chemical industry, 45 firms have been chosen for the analysis based on the above criteria. Similarly, in the case of textile, IT and Finance the number of companies selected are 24, 24 and 18 respectively. Similarly, rights issue announcements identified 26, 22, 24, 41 firms in chemical, textile, IT and finance sectors respectively. However, only 16, 10, 12, 18 respectively, fulfilled the criteria. Thus, the announcements that fulfilled the criteria were chosen for the study and these announcements constituted the sample for the study.

2.1 Methodology

In the earlier studies, bid – ask spread has been treated as an appropriate proxy for capturing liquidity because quoted spread is related with the characteristics of securities such as the volume of trading, the stock price, the number of market makers, the risk of the security and others (Demsetz's (1968), Ho and Stoll (1981); Stoll (1989); Amihud and Mendelson (1986); Copeland and Galai (1983); Glostein and Milgrom (1985); Lee et al. (1993); Biais, Hilton and Spatt (1995). However, it has been found by authors that bid-ask spread is more directly a measure of transactions cost than liquidity and suffers from several shortcomings as a liquidity measure. Firstly, spread alone does not capture the ability of the market mechanism to absorb volume of trading without disturbing price. Secondly, posted quotes are often valid only for small amount of the stock. Thirdly, spread does not reflect the price change that is necessary for a large block of shares to trade. That is, it does not reflect the impact that market orders may have on prices. The bid-ask spread fails to account for trades occurring outside and inside the quoted spread. For example, large trades often transact outside the posted quotes and negotiated trades occur inside the posted quotes. In light of the above shortcomings, trading volume has been considered an appropriate proxy for liquidity (Copeland (1979), Morse (1981), Berkman and Eleswarapu (1998), Kumar et al. (2003), Pagano and Röell (1990), Smith and Sofianos (1997)). Theoretically, stock's trading volume is an increasing function of its liquidity, ceteris paribus (Amihud and Mendelson, 1986). Therefore, an increase (decrease) in the trading volume shows an increase (decrease) in liquidity. The literature documents that a stock's trading volume is an increasing function of its liquidity [(Fisher (1959); Garbade and Silber (1976); Amihud

and Mendelson, (1986)]. Some researchers have also used the liquidity ratio (Adaoglu (2005), Kamara et. al. (1994)). As documented by Amihud et al. (1997) and Adaoglu (2005) for Istanbul stock exchange, the liquidity of stocks cannot be measured by bidask spreads in the Indian stock exchange since there are no market makers or specialists and it is the investors who provide liquidity in the market by entering their limit orders into the electronic trading system. Investors are the market makers. Hence, we use Amihud et al. (1997) and Adouglu (2005) approach and capture liquidity using three proxies namely: changes in raw trading volume, changes in relative trading volume and changes in liquidity ratio. Relative trading volume helps in examining the trading volume of the stock in relation to trading volume of the market index while liquidity ratio examines the market depth whereby it captures the trading volume of the stock in relation to the absolute returns on the respective days.

The change in liquidity is measured in terms of changes in raw trading volume, change in relative trading volume, and liquidity ratio. The

change in raw trading volume (VOL) for security i is computed as:

$$VOL_i = In(VOL_i)_{after} - In(VOL_i)_{before}$$

………………………………………………………......... (1)

where VOLi is the daily trading volume in the periods before the announcement day (-121 to -21) and after the announcement day (+21 to +

121). Relative change in average daily relative trading volume (RELVOL) for a stock is calculated in the following manner:

$$RELVOL_i = In(VOL_i/VOL_m)_{after} - In(VOL_i/VOL_m)_{before}$$

…………………………………................ (2)

where VOLi is the average trading volume of a stock i and VOLm is the average trading volume of the market index, before the announcement day and after the announcement day. The liquidity ratio which is also known as the Amivest measure of liquidity or the

market depth ratio was originally developed by Amivest corporation for its monthly newsletter and it is considered as a good proxy for market depth in several studies (Khan and Baker, 1993; Muscarella and Piwowar, 2001). The liquidity ratio measures the trading volume associated with a unit change in the stock price and a high ratio indicates that investors can trade a large number of shares with little price change. If a firm's returns are lower, it implies that the announcement has created a negative signal in the market, which in turn results in lower returns for the firm, and hence the investors will not trade actively in that particular stock and trading volume increase / decrease is a result of trader's activity in the stock market. Therefore, an increase (decrease) in the liquidity ratio shows an increase (decrease) in liquidity or market depth for a stock. An increase in the liquidity ratio shows an increase in liquidity for a given stock. The Liquidity ratio is calculated as:

$$LR_i^{k,m} = \frac{\sum_k^m V_{i,t}}{\sum_k^m |R_{i,t}|}$$

…………………………………………………......... (3)

where Vi, t and |Ri,t| are the trading volume and the absolute return, respectively, for stock i on day t, comparing the liquidity for the period (−120 to −21) before the announcement day to the liquidity for the period (+21 to +120) after the announcement day. The change in the liquidity ratio (LR) for stock i is computed as:

$$LRi = In(LR_i)_{After} - In(LR_i)_{Before}$$ ....
....(4)

These three measures are calculated for all the firms in the four sectors and the the mean and median changes have been observed and the statistical significance has been examined using parametric and non parametric tests. Parametric test such as t test has been used to judge the significance of change in liquidity around bonus issue and rights issue announcement. Non parametric tests such as sign test and Wilcoxon signed rank test have been used to examine the significance of change in medians of the three measures used to capture liquidity.

3. RESULTS

In the chemical, finance and IT industry, bonus issue announcement shows a positive mean change in liquidity but a negative median change (see Table 1). However, the changes in mean and median according to parametric and non parametric tests are insignificant. In the textile sector, the changes in trading volume (VOL) are negative but insignificant according to t test, Sign test and Wilcoxon signed rank test.

The change in relative trading volume has been used to examine the change in trading volume of the company in relation to the trading volume of the market index. This analysis has been done in order to make the results regarding change in trading volume more robust. Both the ratios (raw and relative trading volume) will enhance the understanding of the change in liquidity around bonus issue announcement. The mean and median changes are negative but insignificant

for Bonus issue announcement for the chemical sector. In finance and IT industry, bonus issue announcement shows a positive mean change in relative trading volume but a negative median change, but the results are insignificant. In the case of textile sector, the mean and median change is negative and it is statistically significant for all tests.

It is evident from Table 1, that the liquidity ratio is negative and has significantly decreased in the case of all sectors. The Liquidity ratio has come down significantly which reveals that the market depth has significantly fallen after the bonus issue announcement for the companies in all the sectors. Reduction in market depth shows that the bonus issue announcement conveyed a negative signal in the market and the investors reduced their trading activity in the market in the post announcement period. If the firm's returns are lower, the investors' perception towards the firm will also be negative. This will result in lower returns and hence the liquidity for that firm will also be lower as the investors will not actively trade in that particular stock. This results in lower trading volume and hence lower liquidity. Market depth, captured by liquidity ratio has come down significantly which might be due to increased information asymmetry risks, as suggested by Kim and Verrecchia (1991b). Specialists and other liquidity providers actively manage information asymmetry risk by adjusting both spreads and depths. This also shows that the markets are efficient as the information is captured in the market and the trading activity is slowed down after the bonus issue announcement.

The analysis shows that change in trading volume, relative trading volume and liquidity ratio has decreased for all the sectors after the bonus issue announcement. Though, there is no difference in the market behavior to bonus issue announcement across industries, we find that the changes in raw and relative trading volume are not significant for all the industries except for the textile industry. A decline in stock price liquidity supports the cash substitution hypothesis, which postulates that firms can conserve cash by issuing a

Table 1: Liquidity Changes Around Bonus Issue Announcement for Chemical, Textile, IT and Finance Sectors

Industry	Chemical			Textile			IT			Finance		
	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio
Mean	0.01860	-0.01466	-1.05617	-1.0368	-1.0368	-1.0368	0.04912	0.05345	-1.25012	0.17926	0.87240	-0.68495
Median	-0.09011	-0.15428	-0.94690	-1.07941	-1.0794	-1.07941	-0.22564	-0.21299	-1.67915	-0.26669	-0.28235	-1.44604
T test	0.09893	-0.07615	-6.5347***	-0.69151	-0.6793**	-2.7261***	0.175245	0.195904	-4.80821***	0.38415	0.74769	-1.1044
SignTest	0.18257	0.18257	4.9295***	0.43644	0.43644	1.74574**	1.066004	1.492405	3.198011***	0.75	0.25	2.2555**
Wilcoxon Signed Rank Test	0.22625	0.41137	4.3193***	0.66040	0.79943	2.32876***	1.168763	0.844107	3.051771***	0.38782	0.18098	2.19762**
Positive: Negative	14:16	14:16	1:29	9:12	9:12	6:15	8:14	7:15	3:19	6:10	7:11	3:13:2

Note:
The table shows three measures of the change in the liquidity for companies announcing Bonus issues, comparing the liquidity for the before period (−120 to−21) relative to the announcement day to the liquidity for the after period (+21 to +120) relative to the ex-day. The change in liquidity (_VOL) is measured as ln(VOLi)after −ln(VOLi)before, whereVOLi is the average daily trading volume for security i.Similarly, the change in relative liquidity (RELVOL) is measured as ln(VOLi/VOLM)after −ln(VOLi/VOLM)before, where VOL is the average daily trading volume for security i and VOLM is the average trading volume of the market. The change in the liquidity ratio (LR) for security i is measured as ln(LRi)after −ln(LRi)before, where the liquidity ratio (LR) is measured as t(VOLi,t)/t(|Ri,t|), where VOLi,t and |Ri,t| are the trading volume and the absolute return respectively on stock i on day t. "Positive" and "negative" show the number of positive and negative changes respectively.

stock dividend as a temporary substitute for an existing or contemplated cash dividend (Ghosh and Woolridge (1988)). Investors prefer cash dividend over stock dividend.

Issuing stock dividend (bonus issue) might convey signals to the investors that the companies have shortage of cash and hence they are coming up with stock dividend. This might have led to a decrease in liquidity after the bonus issue announcement. The study rejects the liquidity hypothesis while supporting cash substitution hypothesis similar to Copeland (1979), Lakanishok and Lev (1987), and Conroy et al. (1990) while it differs from the findings of Grinbalatt e a. (1984). Denis Kadlec (1994), Eckbo et al. (2000), Beneish and Whaley (1996), and Lynch and Mendenhall (1997). These findings are consistent with an increase in information asymmetry risk after the announcement.

With respect to the impact of rights issue announcement on liquidity in IT, Finance, Chemical and Textile Sectors, the analysis shows that liquidity as measured by trading volume, relative trading volume and liquidity ratios have decreased after the rights issue announcement for all the sectors(see Table 2). The effect is significant for relative trading volume with respect to Textile industry and for liquidity ratio with respect to all the sectors. Thus, the findings show that there is decline in liquidity after the rights issue announcement. The results show that investors perceive the rights issue by the firms negatively, as the firm is distributing the shares to the existing shareholders as against floating a new issue in the market. As signaling theory postulates, firms' actions convey some meaningful information to the investors.

4. CONCLUSION

The study finds evidence of decline in stock liquidity for all sectors and the change in liquidity is statistically significant after bonus and rights issue announcement. The liquidity effects can vary across firms with differing degrees of information asymmetry between the firm and the market, but

there is no evidence of different behaviour in stock liquidity across sectors. The results of the study are consistent with previous U.K. and U.S. evidence, indicating that liquidity around issue announcements are negative and significant. However, our findings are in contrast to Adaoglu (2005) for Istanbul stock exchange, who does not find any significant change in liquidity around rights issue announcements. Our findings indicate that specialists and other liquidity providers actively manage information asymmetry and our results highlight the importance of the quantity dimension (depth) of market liquidity. We also provide empirical support for models that predict liquidity should be affected by incoming trades and anticipated news events. In particular, we show that liquidity drops after the news announcement which is consistent with an increase in information asymmetry after bonus and rights issue news announcements. The study complements the literature in terms of ascertaining stock price liquidity around bonus and rights issue in India which is an order driven market. This study also highlights the information asymmetry behavior around bonus and rights issue announcement which induces the potential change in liquidity around bonus / rights issue announcements, but there is no evidence of enhanced liquidity trading effect. Firms can anticipate the nature of change in liquidity around bonus and rights issue announcement and appropriate strategic plans to improve the trading activity can be evolved to improve the liquidity scenario around the issue announcement.

Future research could shed light on the interrelationship between stock price liquidity, volatility and the cause and effect relationship between both. One can also attempt to analyze the factors affecting stock price liquidity and how the liquidity affects volatility in Indian stock market. A more detailed treatment of these important aspects of the specialist's behavior would benefit future research. We find the market anticipates some aspects of upcoming news, but we do not investigate how the market is able to acquire this knowledge. A more detailed study of the firm or news characteristics that help the market

Table 2: Liquidity Changes Around Rights Issue Announcement for Chemical, Textile, IT and Finance Sectors

Industry	Chemical			Textile			IT			Finance		
	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio	Raw Trading Volume	Relative Trading Volume	Liquidity Ratio
Mean	-0.24692	-0.29327	-1.34567	-0.63747	-0.89141	-1.44898	-0.3437	-0.36791	-1.42085	0.136687	-0.08825	-0.81312
Median	-0.63009	-0.83436	-1.71356	-0.34812	-0.43113	-0.92065	-0.3858	-0.5426	-1.63754	-0.60158	-0.38444	-0.90678
T test	-0.65132	-0.77808	-2.73593**	-1.23141	-1.90337*	-3.0710***	-0.65132	-0.77808	-2.73593**	0.333054	-0.25667	-2.23485**
Sign Test	0.948683	0.316228	1.581139	0.666667	0.666667	2.0900**	0.948683	0.316228	1.581139	-5.3789	1.032796	2.065591**
Wilcoxon Signed Rank Test	0.713506	0.917365	2.038589**	0.947758	1.658577*	2.48786***	0.713506	0.917365	2.038589**	0.425971	0.937137	1.902672**
van	-0.70252	-0.95249	-2.0783**	-1.07996	-1.7505*	-2.4474***	-0.70252	-0.95249	-2.0783**	-0.22553	-0.66866	-1.79255*
Positive :Negative	3:7	4:6	2:8	3:6	3:6	1:8	3:7	4:6	2:8	7:8	5:10	3:12

Note:
The table shows three measures of the change in the liquidity for companies announcing Rights issues, comparing the liquidity for the before period (−120 to−21) relative to the announcement day to the liquidity for the after period (+21 to +120) relative to the ex-day. The change in liquidity (_VOL) is measured as ln(VOLi)after −ln(VOLi)before, whereVOLi is the average daily trading volume for security i. Similarly, the change in relative liquidity (RELVOL) is measured as ln(VOLi/VOLM)after −ln(VOLi/VOLM)before, where VOL is the average daily trading volume for security i and VOLM is the average trading volume of the market. The change in the liquidity ratio (LR) for security i is measured as ln(LRi)after −ln(LRi)before, where the liquidity ratio (LR) is measured as t(VOLi,t)/t(|Ri,t|), where VOLi,t and |Ri,t| are the trading volume and the absolute return respectively on stock i on day t. "Positive" and "negative" show the number of positive and negative changes respectively.

to distinguish the more important announcements would be instructive. Such a study could improve our understanding of how the market acquires and processes information. This study encourages future researchers to undertake international comparisons on the news announcement impact on stock returns. A larger sample would give better insights into the nature and magnitude of stock price liquidity reaction. Overall, one can say that the signaling model and cash substitution hypothesis holds true, while liquidity hypothesis does not hold true in the Indian stock market.

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