

Signalling Hypothesis and Clientele Shifts: Evidence from Indian Stock Splits

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Abstract

Researchers have always questioned the rationale for stock splits. Some have attributed the existence of stock split to a manager's desire of increasing the liquidity of the stock. Others have argued that the split is a mechanism by which managers can signal to the market the expectations of future profitability of the firm. In this study we test the signalling hypothesis of stock splits and its implications on institutional holdings in Indian markets. We examine if the splitting firms exhibit significant increases in net sales and profitability after the split. Further we examine if splits have a significant effect on the ownership pattern on individual and institutional investors like FIs and FIIs.

We find strong evidence supporting the signalling hypothesis in the Indian markets. There are significant increases in net sales and profitability of splitting firms after the split as compared to control firms. Also, consistent with the signalling hypothesis, FII shareholdings increase significantly for splitting firms. Thus, through splits, Indian managers tend to send signals to the market about the expected future profitability of the company. Also, financial institutions like Foreign Institutional Investors (FIIs) have the ability to process these signals effectively.

Keywords

Stock splits, ownership structure, signalling hypothesis

Introduction

Stock splits have puzzled the researchers in finance for a long time. Stock splits are purely a book entry which does not increase a firm's cash flow, but just increases the number of shares outstanding and reduces the price per share. Since there is no direct effect of stock splits on cash flows and discount rates, splits are not expected to change a shareholder's wealth. The question then naturally arises: why do managers split their stocks? And why do we see a positive abnormal reaction of stock prices as documented in literature (example Grinblatt et al., 1984).

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The two major theories that try to explain the rationale and market reaction to stock splits are the liquidity effect and signalling effect. The liquidity effect states that a split brings stock prices to a lower level which makes it more affordable to investors and thus increases a stock's liquidity. As per the signalling hypothesis, since managers have private information about the future prospects of the firms, they use stock splits to convey this favourable private information to the market. A signal split is a costly one, since the split would reduce the price of the stock and some administrative costs are also involved. Managers thus would split the stock only if they are confident that prices will rise (at least not fall) in the future. Previous literature has supported this signalling hypothesis. Lakonishok and Lev (1987) find that firms that split their stock have higher short-term earnings growth than firms that do not split. Asquith et al. (1989) examine the stock split events for those stocks which do not pay dividend prior to or in the announcement year. They find a significant earnings increase in the four years before stock split announcements. In the post-split period, the firms show a significant earnings increase in the year of splits. McNichols and Dravid (1990) also suggest that announcement period returns of splitting firms can be explained by management's private information about future earnings.

Splits also have an impact on the ownership structure of firms. For example, as stated by the liquidity hypothesis if splits reduce the stock price, and the effect is to attract more retail investors, then splits would increase the shareholding of individual investors and reduce the institutional ownership (Lakonishok and Lev, 1987; Lamoureux and Poon, 1987). On the other hand, as argued by Dennis and Strickland (1998), if the signalling hypothesis holds, we would expect institutional holdings to increase after the split since institutional investors are expected to process the signal (in splits) more efficiently than individual investors. Dennis and Strickland (1998) find that the percentage increases in institutional ownership are greatest for firms that currently have low institutional ownership. Mukherji et al. (1997) indicate that stock splits result in increases in the number of both institutional and individual shareholders, though this change does not affect the proportion of equity shares held by the institutions. Thus, there is no conclusive evidence of the impact of splits on the percentage of institutional investors.

In the Indian context, prior to 1999, it was mandatory to have a minimum par value of stocks. This law inhibited many companies from splitting their stocks. Things have changed since March 1999 when SEBI allowed companies to set the face value of their shares, as long as it is not fractional. This move enables companies to split their stocks. This is the primary reason why stock splits were unpopular in India till the year 2000, after which split activity picked up.

In this study, we examine two aspects of splits in the Indian context. One, whether stock splits convey private information towards future earnings/profitability. Whatever be the type of private information, ultimately it should be reflected in the improvement of sales and profitability of the firm. This is basically a test of the signalling hypothesis of stock splits. Two, we study the effect of stock splits on the ownership structure of Indian firms. For this purpose we classify investors into four categories: financial institutional investors (FIs), foreign institutional investors (FIIs), individual investors and promoters. The reason for taking the promoter's holding is the institutional investors have a tradition of staying with promoters. The objective is to analyze the change in holding pattern of each category on investors before and after the split. If the signalling hypothesis holds, we would expect to see an increase in the proportional holding (percentage) of institutional investors and individual investors after the split.

We also study the effect of stock splits on future earnings, profitability and ownership structure based on split factors. If the signalling theory holds, the more favourable the manager's information about the value of the firm, the greater should be the split factor. Hence we would expect greater changes in earnings, profitability and ownership for firms with greater split factors.

In contrast to previous literature, the present study tests a broad sample of firms. A recent study done by Shirur (2008) on stock splits in India finds the rate of growth of net sales and rate of growth of net profit is less for splitting firms as compared to index firms (Nifty 50). In contrast, we test the signalling hypothesis by looking at the changes in net sales and net profit of splitting firms before and after the split. Also, we use firms that are industry matched and sales matched (quarterly net sales during the split quarter), rather than index firms as the control sample. Other studies such as Gupta and Gupta (2007), Joshipura (2008) and Mishra (2007) have looked at abnormal returns surrounding splits announcements.

The results of our study suggest that there are significant earnings increases in the sixth and fourth quarters after the split announcement. Also, there are significant increases in the reported net sales for the splitting firms immediately after the split announcement quarter as well as the sixth and fourth quarters after the split announcement.

This study also finds that stock splits significantly increase the holdings of the FIIs. Interestingly the results of the study show that there is a significant decrease in promoter's holdings after the split. In case of an increase in individual investors and FIs, there are few significant changes in ownership.

Further, changes in net sales, profitability and FII holdings are positively correlated with split factor. All these results lend support to the signalling hypothesis in stock splits.

Review of Literature

The stock splits literature can be split among three categories: the first category deals with the explanation of why managers may resort to stock splits. Lakonishok and Lev (1987) analyze the signalling effect of stock splits using growth in earnings and growth in cash dividends of splitting firms after the split. They find that there is a significant increase in both these performance indicators after the split.

Ikenberry et al. (1996) and Desai and Jain (1997) find evidence of excess returns for splitting firms in the three years following a split announcement. Brennan and Copeland (1988) indicate that the split ratio can be considered as a signal of a manager's favourable private information about the firm's prospects.

Asquith et al. (1989) find that splitting firms have a significant increase in earnings in the four years prior to the split. However, as far as the earnings after the split are concerned, there is an earnings increase only in the year after the split. Nayak and Prabhala (2001) find that about 54 per cent of abnormal return effects in splits can be explained by the dividend information in splits.

However, Huang et al. (2002) show that splits contain little information about long-term future earnings and the trend of earnings is declining. This declining trend in earning growth does not seem to support Asquith et al. (1989) and they argue that managers may not use stock splits to signal future profitability but rather as a means to convey that pre-split earning growth is permanent.

The second category of researchers investigates and documents their empirical results regarding the announcement effects of stock splits. These groups of researchers have performed event studies and looked at the stock price reactions around the announcement date and the execution date. Some studies have also tried to look at price effects after the announcement of the split.

Grinblatt et al. (1984) find that splitting firms have positive abnormal returns of 3.3 per cent over two days around the split announcement. Desai and Jain (1997) and Ikenberry et al. (1996) show that firms

that split their stocks earn positive abnormal returns one and three years after the split, respectively. In support of the signalling hypothesis, Conroy and Harris (1999) find that abnormal returns after stock splits are higher when the split ratio is higher, and also that analysts tend to increase their earnings forecast for the splitting firm.

The third category of papers deals with the impact of stock splits on variables such as variance of return, volume, liquidity and betas. Previous research found that splits have significant liquidity effects (Copeland, 1979; Lakonishok and Lev, 1987; Conroy et al., 1990). Ohlson and Penman (1985) find that stock price volatility also tends to increase significantly following the split. Brennan and Copeland (1988) find that the beta coefficients of splitting firms increase after splits.

Some researchers tried to investigate the change in ownership structure as an extension of signalling hypothesis. One argument regarding why we would expect ownership structure to change after splits is based on the idea that since a split makes a stock's price lower, individual investors can afford to buy the stock, and hence increase their holdings. Lakonishok and Lev (1987) show that after the split, individual ownership increases in the stock

A second argument is based on trading costs. As shown by Conroy et al. (1990), if the relative bid/ask spread increases following a split, we would expect institutional holdings to come down after the splits, since the bid/ask spread incurred by institutional investors is higher due to more frequent trading.

However, using a sample of firms without confounding events surrounding the split, Mukherji et al. (1997) show that stock splits result in an increase in the number of both institutional and individual investors and they do not affect the proportion of equity held by institutions. They also find that the split factor is positively related to the changes in the number of institutional and individual shareholders.

In another work Dennis and Strickland (1998) study splitting firms based on previous institutional ownership, and find that the percentage increase in institutional ownership are greatest for firms that currently have low institutional ownership. The logic of this behaviour is that if most of the current share-holders are individual investors, then institutions would buy stocks from individual investors and we would expect an increase in institutional ownership.

Generally, the above findings show an increase in the ownership of individual investors after the split, either due to the lower trading price or high bid/ask spreads after the split.

We study the signalling effect of stock splits in the Indian context by focusing on two variables: earnings and sales to check if they change after the split. Furthermore, we also look at the changes in holding patterns after the split, to see if there is any significant change, and whether the change is consistent with the signalling hypothesis of stock splits.

Hypotheses

Hypothesis One

Null: Splitting firms do not experience significant changes in earnings and net sales subsequent to the split.

Alternate: Due to the positive signals conveyed by a split, splitting firms should experience significant increase in earnings and net sales in the quarters subsequent to the split announcement.

Hypothesis Two

Null: There is no significant change in the holdings of institutional investors (FIIs and FIs) for splitting firms in the quarters subsequent to the split.

Alternate: Since institutional investors (FIIs and FIs) are better equipped to process the positive signals conveyed by a stock split, splitting firms should exhibit a significant increase in the holdings of institutional investors (FIIs and FIs) in the splitting firms in the quarters subsequent to the split announcement.

Hypothesis Three

Null: There is no significant relationship between the split factor, increases in net sales, profitability, and FII ownership.

Alternate: Since the strength of the signal (in splits) increases with the split factor, increases in net sales, profitability, and FII ownership should be positively related to the split factor.

Data and Methodology

This study was done for the period from 2000 to 2008. During this period a total of 664 stock splits events were found. The Prowess database maintains the data of quarterly holding pattern from the year 2002, so the study period was further modified to 2002–2008. The split announcement dates are collected from ICICI Direct.com Research website. Out of the total sample a large number of stocks are eliminated as the announcement date of the split events was not found. Moreover some firms were eliminated whose holding pattern information was missing for the test period. The final sample consists of 226 stock splits.

The study also uses a broad control sample of 226 non-splitting firms from 2002 to 2008. Two criteria have been considered while choosing the control firms; the firm should belong to the same industry and the quarterly net sales of the control firms should close to the experimental firms.

The relevant information like net sales, net profits, quarterly holdings of FIs, FIIs and individual investors are collected for the sixth, fourth and first quarters before and after the split quarter. This is similar to the methodology followed by Lakonishok and Lev (1987) who analyze the signalling effect using two major corporate performance indicators: growth in earnings and growth in cash dividends for 1 to 20 quarters before and after the split.

To ensure the valid estimates of the measure and avoid contamination effect, the study has taken only those stocks, where there is no other announcement within the five days of the stock split announcement date. This means that the stock split announcements are free from any other announcement like cash dividend, bonus issue or rights issue, etc. (This criteria is used by several researchers like, Asquith et al. (1989), Dravid (1987), Grinblatt et al. (1984), Koski (1998), Lamoureux and Poon (1987)).

The obvious question that arises here is why have the institutional holding been divided into two parts, that is, FIs and FIIs. In the Indian context FIIs have a special significance along with the domestic FIs. This categorization of two institutional investors is highly unlikely in other western stock markets.

As the Indian stock market has low breadth and depth, hence the flow of foreign institutional funds makes a very large impact in the Indian market. The foreign institutional holdings are also not as stable as Indian financial institutions.

To examine the importance of the split factor in signalling, the study categories the split firms into two major split factors 2-for-1 and 5-for-1. Data for all the variables used in the study have been obtained from CMIE PROWESS database.

Findings

Panels A, B and C of Table 1 show the quarterly mean and median of net sales and net profits, percentage of institutional holding and percentage of individual and promoter's holdings respectively, of the

Table 1. Some Example to the Sample Firms for Control Variable

Split Firms	Industry	Net Sales I Quarter before Split	Comparable Firms	Net Sales I Quarter before Split
1 Computech International Ltd.	Computers—Software	22.02	Blue Information Technology Ltd.	19.14
2 Hindustan Unilever Ltd.	Personal Care	2497.18	Nirma Ltd.	2879.72
3 Hero Honda Motors Ltd.	Auto	849.22	L M L Ltd.	951.99
4 Aurobindo Pharma Ltd.	Pharmaceuticals	305.87	Pfizer Ltd.	323.14
5 Havells India Ltd.	Electric Equipment	86.28	Bajaj Electricals Ltd.	109.08
6 Madras Cements Ltd.	Cement	183.91	Birla Corporation Ltd.	149.98
7 Bajaj Hindusthan Ltd.	Sugar	118.81	Dhampur Sugar Mills Ltd.	105.5
8 Motherson Sumi Systems Ltd.	Auto Ancl	113.41	Denso India Ltd.	129.57
9 Chemfab Alkalis Ltd.	Chemicals	23.19	Alkyl Amines Chemicals Ltd.	21.62
10 Super Spinning Mills Ltd.	Textiles	86.53	Siyaram Silk Mills Ltd.	97.72
11 Hexaware Technologies Ltd.	Computers	81.56	3I Infotech Ltd.	83.63
12 Hindalco Industries Ltd.	Aluminium	2207.1	National Aluminium Co. Ltd.	2873.7
13 Shrenuj & Co. Ltd.	Diamond Cutting	140.34	Suashish Diamonds Ltd.	141.89
14 E I H Ltd.	Hotel	246.98	Asian Hotels Ltd.	188.47
15 Simplex Infrastructures Ltd.	Construction	396.27	Parsvnath Developers Ltd.	356.3
16 Apollo Tyres Ltd.	Auto Ancl	910.21	J K Tyre & Inds. Ltd.	847.43
17 Finolex Cables Ltd.	Cables	334.06	Precision Wires India Ltd.	423.21
18 Gulf Oil Corpn. Ltd.	Lubricants	165.81	Savita Oil Technologies Ltd.	187.27
19 Lloyds Metals & Engineers Ltd.	Steel	82.26	Kamdhenu Ispat Ltd.	91.47

Table I. Panel A

The Mean and Median of Net Sales and Net Profit of the Splitting Stocks

This table presents the pre- and post-splits means and medians of average net sales and average net profit for firms which split their stocks during 2002 to 2008.

(₹ in millions)

Quarter	Pre-announcement				Post-announcement			
	Net Sales		Net Profit		Net Sales		Net Profit	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1	1916.6	866.6	183.1	75.3	2132.3	981.0	218.3	83.3
4	1572.5	752.1	141.1	72.0	2618.0	1226.1	257.9	111.2
6	1430.9	735.9	108.7	54.6	2886.4	1442.7	272.0	98.8

Table I. Panel B

Institutional Ownership Mean and Median for Split Sample

This table presents the pre- and post-split mean and median % of FI holdings and % of FII holdings for firms which split their stocks during 2002 to 2008.

(in % of total holding)

Quarter	Pre-announcement				Post-announcement			
	Financial Institution		Foreign Institutional Investors		Financial Institution		Foreign Institutional Investors	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1	7.38	5.165	6.73	2.63	7.36	5.00	7.83	3.89
4	6.92	4.71	4.80	1.01	6.96	5.45	8.46	5.12
6	8.70	4.58	3.26	0.02	7.99	6.44	9.58	6.29

Table I. Panel C

Ownership of Individual Investors and Promoters for Split Sample

This table presents the pre- and post-split mean and median % of individual investor holdings in for firms which split their stocks during 2002 to 2008.

(in % of total holding)

Quarter	Pre-announcement				Post-announcement			
	Individuals		Promoters		Individuals		Promoters	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1	21.24	18.12	51.65	52.1	21.38	18.15	50.65	50.93
4	22.91	18.51	52.89	52.96	22.25	16.94	50.09	50.57
6	23.76	16.4	52.96	52.79	21.21	16.4	50.10	50.09

splitting stocks during 2002–2008. The pre- and post-split periods are divided into three separate quarters, that is, sixth, fourth and first quarters before and after the split. The results show that net sales, net profits and percentage of FII holdings are greater in the quarters subsequent to the splits.

Table 2 shows that there is a significant increase in net sales and net profits for the first, fourth and sixth quarters after the split for the splitting firms.

Table 2. Net Sales and Net Profit Properties around Stock Splits for Splitting Firms

The table presents the change in the net sales and net profit for sixth, fourth and first quarter before and after the splits. The pair-wise difference is calculated as the net sales (net profits) in the sixth/fourth/first quarter after the split minus the net sales (net profits) in the sixth/fourth/first quarter before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

(₹ in millions)

Category	6 Quarters		4 Quarters		1 Quarter	
	Pair-wise Difference	t-statistic	Pair-wise Difference	t-statistic	Pair-wise Difference	t-statistic
Net Sales	1455.4	6.966*** (5.25E-11)	1045.6	7.0381*** (2.63E-11)	215.7	3.155*** (0.0018)
Net Profit	163.3	5.196*** (5.24E-07)	116.8	6.1968*** (2.94E-09)	35.21	2.2354 (0.0263)**

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 3 shows the difference in the changes in sales and profits for splitting firms versus control firms. The results show that the increase in net sales and profits is significantly greater for splitting firms over that of control firms for the fourth and sixth quarters after the split. Thus, the findings of Tables 2 and 3 enable us to reject the null hypothesis for hypothesis one, and lend support to the signalling theory which states that stock splits are used by managers to signal future profitability of the firm.

Table 3. Comparative Statistics: Splitting companies versus Control Companies

This table presents the mean difference between pre- and post-split net sales and net profit for the split firms and the control firms during 2000 to 2008. The pair-wise difference is calculated as the net sales (net profits) in the sixth/fourth/first quarter after the split minus the net sales (net profits) in the sixth/fourth/first quarter before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that the difference in pair-wise difference between the splitting firms and control firms equals zero. The p-value is reported in parentheses.

(₹ in millions)

		Quarter 6		Quarter 4		Quarter 1	
		Pair-wise Difference	t-stat (p-value)	Pair-wise Difference	t-stat (p-value)	Pair-wise Difference	t-stat (p-value)
Net Sales	Split	1455.4	2.486	1045.6	3.428	215.7	1.509
	Control	747.6	(0.014)**	435.6	(0.0007)***	74.2	(0.132)
Net Profit	Split	163.3	2.124	116.8	2.635	35.2	1.063
	Control	70.4	(0.034)**	43.1	(0.009)***	-0.48	(0.288)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 4 shows the FIs, FIIs and Individuals' holdings around stock splits. The results show that there is a significant increase in the FII holding (percentage) in the first, fourth and sixth quarters after the split. In the case of Promoter's holdings (percentage) there is a significant decrease in the first, fourth and sixth quarters after the split. For individual holdings, there is actually a significant decrease in the individual holdings (percentage) in the sixth quarter after the split.

Table 4. FIs, FII, Individuals and Promoters Holding Properties around Stock Splits

The table presents the change in the holding pattern of financial institutions, foreign institutional investors and individual investors in the sixth, fourth and first quarters before and after the split. The pair-wise difference is calculated as the % holding in the sixth/fourth/first quarter after the split minus the % holding in the sixth/fourth/first quarter before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Category	6 Quarters		4 Quarters		1 Quarter	
	Pair-wise Difference	t-statistic	Pair-wise Difference	t-statistic	Pair-wise Difference	t-statistic
Financial Institutions	-0.717	-0.6369 (0.525)	0.0425	0.0948 (0.9245)	-0.025	-0.1436 (0.8859)
Foreign Institutional Investors	6.323	8.707*** (2.83E-15)	3.6677	6.6563*** (3.06E-10)	1.0965	3.470*** (0.00065)
Individual	-2.547	-3.046*** (0.0027)	-0.6555	-0.8966 (0.371)	0.1454	0.4529 (0.6512)
Promoter	-2.853	-3.474*** (0.000)	-2.805	-3.960*** (0.000)	-1.003	-2.950*** (0.003)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 5. Comparative Statistics: Splitting Companies versus Control Companies

This table presents the mean difference between pre- and post-splits holding pattern of individual and institution for the split firms and the control firms during 2002 to 2008. The pair-wise difference is calculated as the % holding in the sixth/fourth/first quarter after the split minus the % holding in the sixth/fourth/first quarters before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that the difference in pair-wise difference between the splitting firms and control firms equals zero. The p-value is reported in parentheses.

(in % of total holding)

		6 Quarter		4 Quarter		1 Quarter	
		Pair-wise Difference	t-stat (p-value)	Pair-wise Difference	t-stat (p-value)	Pair-wise Difference	t-stat (p-value)
FI	Split	-0.71	-0.556	0.0425	0.945	-0.025	0.716
	Control	-0.002	(0.578)	-0.567	(0.346)	-0.26	(0.475)
FII	Split	6.32	4.271	3.667	2.41	1.096	1.641
	Control	2.34	(0.00003)***	1.892	(0.017)**	0.316	(0.102)
Individual	Split	-2.55	-1.267	-0.655	0.339	0.145	1.156
	Control	-1.19	(0.207)	-0.946	(0.734)	-0.326	(0.249)
promoters	Split	-2.853	-1.78427	-2.805	-2.4785	-1.003	-1.30968
	Control	-0.93009	(0.0758)*	-0.10668	(0.0139)**	-0.31226	(0.1917)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 5 presents the mean difference between pre and post-split holding pattern of individual, promoter and institution for the split firms and the control firms. The table shows that increase in the FII holdings (percentage) is significantly greater for splitting firms than control firms for the fourth and sixth quarters after the split. Promoter's holdings (percentage) are significantly lower for splitting firms than control firms for only the fourth quarters after the split. The findings of Tables 4 and 5 enable us to reject

the null hypothesis for hypothesis two, and lend support to the signalling theory which states that institutional investors are able to process the signal in splits efficiently.

Table 6 shows the net sales and net profit sorted by the split factor. This table shows that greater the increases in both net sales and net profits, higher the split factor.

Table 7 shows the FIs, FIIs and Individuals' holding changes sorted by split factor. Here we see that the changes in FII holdings (percentage) are greater for the 5-for-1 split than for the 2-for-1 split. Thus there is more signalling in the 5-for-1 split versus the 2-for-1 split, and FIIs are able to process this information. This evidence in Tables 6 and 7 enables us to reject the null hypothesis for hypothesis three, and support the signalling theory which states that the strength of the signal in splits increases with the split factor.

Thus, we reject hypothesis one, two and three, and conclude that the signalling effect of stock splits is prevalent in Indian markets.

Table 6. Net Sales and Net Profit Properties as per Split Factor Sort

The table presents the change in the net sales and net profit for sixth, fourth and first quarter before and after the splits based on two split factors: 2-for-1 and 5-for-1. The pair-wise difference is calculated as the net sales (net profits) in the sixth/fourth/first quarter after the split minus the net sales (net profits) in the sixth/fourth/first quarters before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Split Ratio	6 Quarters		4 Quarters		1 Quarter	
	Pair-wise Difference		Pair-wise Difference		Pair-wise Difference	
	Net Sales	Net Profit	Net Sales	Net Profit	Net Sales	Net Profit
2-for-1	4.3655*** (7.83E-05)	3.3242*** (0.0018)	4.6667*** (2.4E-04)	1.3589 (0.1804)	3.0013*** (0.0042)	0.7728 (0.4433)
5-for-1	6.1453*** (1.06E-08)	4.7356*** (5.99E-06)	6.0740*** (1.18E-08)	3.8235* (0.0002)	1.5034 (0.1349)	1.7998* (0.0739)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 7. FIs, FIIs and Individuals Holding Properties as per Split Factor Sort

The table presents the change in the holding pattern of financial institutions, foreign institutional investors and individual investors in the sixth, fourth and first quarters before and after the split based on two split factors: 2-for-1 and 5-for-1. The pair-wise difference is calculated as the % holding in the sixth/fourth/first quarter after the split minus the % holding in the sixth/fourth/first quarters before the split. The t-statistic (from the paired t-test) is for the test of the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Split Ratio	6 Quarters			4 Quarters			1 Quarter		
	Pair-wise Difference			Pair-wise Difference			Pair-wise Difference		
	FI	FII	I	FI	FII	I	FI	FII	I
2-for-1	1.6403 (0.112)	4.88*** (0.0004)	-2.115** (0.0438)	0.9280 (0.3605)	3.40*** (0.0018)	0.0224 (0.9822)	-1.6082 (0.117)	0.3407 (0.735)	1.89* (0.0679)
5-for-1	1.66* (0.099)	7.39*** (4.23E-11)	-3.99*** (0.0001)	1.1677 (0.2453)	5.91*** (3.38E-08)	-3.09*** (0.0025)	0.6199 (0.536)	3.435*** (0.0008)	-0.0439 (0.965)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Conclusion

The purpose of this study is to analyze if the announcement of stock splits convey positive information about the firm, as suggested by the signalling theory of stock splits, and if institutional investors are better able to process this information.

The study examines the change in average net sales and changes in average net profit of the splitting firms for the sixth, fourth, and first quarters after the split. The results of this study suggest that stock splits provide information to investors concerning future sales and profits. More precisely, there are significant earnings increases in net profits in the sixth and fourth quarters after the split announcement. Also there is a significant increase in the reported net sales for the splitting firms immediately after the split announcement quarter as well as fourth and sixth quarters after the split announcements (see Tables 8, 9 and 10).

The study compares the change in net sales and net profit for the splitting firms with control firms and finds evidence of significantly higher quarterly net sales and the net profits of the companies going for stock splits as compared to the mean net sales and net profit of the control companies for the sixth and fourth quarters after the split events.

The other major finding is that stock splits significantly increase the holdings of the FIIs. The study tests a broad control sample of non-splitting firms and finds that there is also significant increase in the average holdings of the FIs for the sixth, fourth and first quarters in the post-split period compared to pre-split period. Furthermore, the study finds the mean difference of foreign institutional investors

Table 8. Net Sales and Net Profit Properties as per Average Daily Market Capitalization (Quintile Division) for Splitting Firms

The table presents the change in net sales and net profit for sixth, fourth and first quarter before and after the split. The whole split sample divided into quintile range based on average daily market capitalization of the stock. The first quintile consists of the lowest daily market capitalization stocks (small cap stocks), the next quintile consists of the next highest daily market capitalization value (small to medium market cap) and similarly the last quintile consists of the highest daily market capitalization value (large cap stocks). The t-statistic of the null hypothesis is for the test of the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Quintile	6 quarters Before and After		4 Quarters Before and After		1 Quarter Before and After	
	Net Sales	Net Profit	Net Sales	Net Profit	Net Sales	Net Profit
1. Up to ₹ 1 billion	2.4589** (0.0175)	1.0785 (0.2861)	2.6619** (0.0102)	1.4830 (0.1562)	2.0688** (0.0429)	1.790* (0.0785)
2. ₹ 1–₹ 3 billion	4.4887*** (4.35E-05)	2.9546*** (0.0048)	5.0880*** (4.69E-06)	1.8083* (0.0761)	2.1847** (0.0328)	-0.5402 (0.5911)
3. ₹ 3–₹ 7.5 billion	4.2207*** (0.0001)	1.7109* (0.0934)	5.3042*** (2.16E-06)	3.0919*** (0.0031)	1.3235 (0.1908)	-0.0744 (0.9409)
4. ₹ 7.5–₹ 21 billion	4.1919*** (0.0001)	4.1254*** (0.0001)	4.3895*** (5.32E-05)	3.6521*** (0.0005)	1.1556 (0.2525)	1.0655 (0.2909)
5. Above ₹ 21 billion	5.1975*** (4.25E-06)	5.1174*** (5.92E-06)	5.8592*** (2.87E-07)	4.3797*** (5.5E-05)	3.5820*** (0.0007)	1.2241 (0.2259)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 9. FIs and FII's Holding Properties as per Average Daily Market Capitalization (Quintile Division) for Splitting Firms

The table presents the percent change in holding pattern of FIs and FII's for sixth, fourth and first quarter before and after the split. The whole split sample divided into quintile range based on average daily market capitalization of the stock. The first quintile consists of the lowest daily market capitalization stocks (small cap stocks), the next quintile consists of the next highest daily market capitalization value (small to medium market cap) and similarly the last quintile consists of the highest daily market capitalization value (large cap stocks). The t-statistic is for the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Quintile	6 Quarter Before and After		4 Quarter Before and After		1 Quarter Before and After	
	FI	FII	FI	FII	FI	FII
1 Up to ₹ 1 billion	-0.9525 (0.3467)	2.23** (0.0313)	-0.916 (0.365)	2.10** (0.0414)	-1.458 (0.15)	1.6116 (0.1142)
2 ₹ 1-₹ 3 billion	-0.3692 (0.7139)	3.49*** (0.0018)	0.1530 (0.879)	2.93*** (0.0053)	-0.815 (0.41)	2.152** (0.0369)
3 ₹ 3-₹ 7.5 billion	3.37*** (0.002)	5.17*** (7.16E-06)	1.6494 (0.106)	3.46*** (0.0011)	0.610 (0.54)	2.92*** (0.0054)
4 ₹ 7.5-₹ 21 billion	-0.5467 (0.5877)	5.67*** (1.45E-06)	0.6973 (0.489)	4.073*** (0.0002)	-1.169 (0.24)	1.4758 (0.1471)
5 Above ₹ 21 billion	-1.1095 (0.2750)	5.12*** (1.21E-05)	-1.558 (0.126)	4.869*** (0.0000)	-0.375 (0.70)	0.9869 (0.3295)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 10. Individuals and Promoters Holding Properties as per Average Daily Market Capitalization (Quintile Division) for Splitting Firms

The table presents the per cent change in holding pattern of Individual Investors and Promoters for sixth, fourth and first quarter before and after the split. The whole split sample divided into quintile range based on average daily market capitalization of the stock. The t-statistic is for the null hypothesis that sample mean equals zero. The p-value is reported in parentheses.

Quintile	6 Quarter Before and After		4 Quarter Before and After		1 Quarter Before and After	
	Individuals	Promoters	Individuals	Promoters	Individuals	Promoters
1 Up to ₹ 1 billion	2.05** (0.046)	-1.772 (0.0829)*	3.14*** (0.0029)	-2.5275 (0.0149)**	2.669** (0.010)	-2.5968 (0.0125)***
2 ₹ 1-₹ 3 billion	-1.5545 (0.128)	-2.3285 (0.0241)**	-0.8735 (0.3871)	-0.2078 (0.8262)	-0.1447 (0.8856)	-3.338 (0.0016)***
3 ₹ 3-₹ 7.5 billion	-4.09*** (0.000)	-1.4941 (0.1414)	-3.33*** (0.0018)	-2.7543 (0.0082)***	-2.006** (0.0510)	-2.2204 (0.0309)***
4 ₹ 7.5-₹ 21 billion	-4.70*** (0.000)	-1.0472 (0.3002)	-3.85*** (0.0004)	-3.4638 (0.0013)***	0.0281 (0.9777)	-0.8364 (0.4070)
5 Above ₹ 21 billion	-4.01*** (0.000)	-1.3663 (0.1781)	-1.3388 (0.187)	-0.9849 (0.3295)	1.0859 (0.2838)	0.1461 (0.8844)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

holding between four quarters after the split and four quarters before the split for splitting firms is significantly higher as compared to control firms. The increase in net sales, profitability, and FII holdings is also greater for stocks with higher split factors, suggesting that the strength of the signal increases with the split factor.

Therefore, it can be concluded that signalling hypothesis related to stock splits holds true in the Indian stock market. The managers use stock splits as a mechanism to signal to the market about the future expectations of better sales and profitability. Also, FIIs are better able to process the signal in splits.

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