THE POST-ISSUE OPERATING PERFORMANCE OF INDIAN IPO FIRMS

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This paper investigates the change in post-issue operating performance of 300 Indian IPO firms over a three-year period relative to their pre-issue levels. Further, it explores, whether the issuing firms signal their value at the time of issue through underpricing and whether operating performance of issuing firms is reflected in their long-run stock price performance. The accounting ratios have been used as the proxy for the long-run performance of the issuing firms. Using several performance measures, it has been found that IPO firms are not able to sustain the pre-IPO levels of profitability in the after-market period.

I- Introduction

The after-market long-run price behaviour of initial public offerings (IPOs) has generated considerable interest among the researchers, investors and the practitioners the world over. Greater focus had been on stock price performance for analyzing the long-run performance of IPOs with a few exceptions like Jain and Kini (1994), Loughran and Ritter (1997), Mikkelson, Partch and Shah (1997) and Teoh, Welch, and Wong (1998) who investigated the firms' operating performance subsequent to issue. It would be interesting to analyze whether the stock returns of issuing firms reflect their operating performance since the stock returns have a direct implication on investors' wealth. Furthermore, stock returns have been found to be incapable of explaining the long-run underperformance.

Researchers have documented a long-run decline in post-IPO operating performance of firms in various economies. Jain and Kini (1994), Loughran and Ritter (1997), Mikkelson, Partch and Shah (1997) and Teoh, Welch, and Wong (1998) document long-run decline in companies' post-IPO operating performance for the USA, while Pagano et. al. (1998) for Italy, Khurshed et. al. (2003) for UK and Cai and Wei (1997) and Kutsuna, et. al. (2002) for Japan

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document such decline in operating performance for issuing companies.

Three probable causes are normally offered for such decline in post-issue operating performance of IPO firms. The first is principal-agent problems that arise after a company becomes a public company (Jensen and Meckling (1976)). There is an increase in the agency cost as the conflict between the managers and the shareholders becomes worse because of decline in the entrepreneurs' ownership and dispersal of ownership subsequent to the IPOs. The second is due to earnings management. The IPO companies may carry out window dressing prior to the offer. The earnings management prior to issue has been found to be related to long-run underperformance (Teoh et al., 1998). Third, the entrepreneurs may time the offerings of their companies according to the market conditions. They prefer to list their firms when the extraordinarily good performance is reported or when they could enjoy a favorable market valuation (Pagano, Panetta, and Zingales, 1998).

Till date, research in India has primarily focused on the after-market and long-run stock price behavior of IPOs. This study is probably the first attempt at analyzing the operating performance of Indian IPOs. Unlike the US, the IPO market in India is typical of IPO markets around the world, which tend to be rather small in size and often dominated by a few large issues on a regular basis. In addition, there are institutional differences between the US and Indian IPO markets which warrant an examination of the long-run operating performance of IPOs in India. This paper provides comprehensive empirical analysis of the long-run operating performance of IPOs in India during 1992-2001 and attempts to relate the pre- and post-issue operating performance. To get insight into the changes of the operating performance of IPO firms, use of accounting data one year prior to and three years after the privatization has been made.

It has been found that IPO firms in India also exhibit a decline in post-issuing operating performance, as measured by return on assets, operating cash flow on assets deflated by total assets, relative to their pre-IPO levels. However, such underperformance is not depicted in sales and capital expenditures of such firms as these have been found to exhibit growth in years after issuance. Thus, the decline in

operating performance of IPOs cannot be attributed to reduction in sales growth or post-IPO capital expenditures.

II- Review of Literature

Extant literature on IPOs documents the existence of underpricing and subsequent underperformance of issuing firms. The reasons for the underperformance of IPO firms in the long-run are less explored. In this context, Jain and Kini (1994) reported a significant decline in the operating performance of IPO firms subsequent to the offering. Loughran and Ritter (1997), Mikkelson et al. (1997) and Cai and Wei (1998) corroborated the evidence provided by Jain and Kini (1994) that decline in operating performance of issuing firms is in line with their stock underperformance in the long run. Rangan (1998) and Teoh et al. (1998) attributed such underperformance to the practices of earnings management prior to a seasoned equity offering.

Hansen and Crutchley (1990) reported that the operating returns of issuing firms experience substantial decline in the years subsequent to the issue, whereas the capital expenditures have been found to rise substantially. Moreover, they found that the size of decline in operating returns had a positive correlation with the size of the issue. They argued that managers expect the operating underperformance and thus time their issues to raise new capital.

Jain and Kini (1994) reported the decline in post-issue operating performance of IPO firms as compared to their pre-issue levels. Based on a sample of 682 U.S. IPOs from 1976 to 1988, they observed that the median changes in industry-adjusted operating return on assets are -2.98%, -6.24%, -8.12%, and -6.81% (all significantly different from zero at 1% level) for years 0, +1, +2, and +3 relative to one year prior to IPOs. They also observed that the median change in asset decreased by 23.44% over four-years from year -1 to +3, while net sales and capital expenditures grew faster than matched industry firms. In spite of the high growth in sales and capital expenditure, they reported a decline in asset turnover which indicates that IPO firms increase their assets faster as compared to the growth of sales.

McLaughlin, Safieddine and Vasudevan (1996) examined the operating performance of 1,296 seasoned equity offerings listed on

the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ during the period 1980-1991. They revealed that SEO firms had a significant increase in operating performance prior to the issue however such firms registered a considerable decline in profitability in the post-issue period.

Cai and Wei (1997) investigated 180 initial public offerings listed on the Tokyo Stock Exchange during the period 1971-1992. They reported that Japanese IPO firms experienced a downward drift in post-offering performance which was confirmed by the deterioration in operating performance. However, they did not find any significant difference between the changes in the operating returns of low and high director-ownership firms, which is against the agency cost hypothesis. Moreover, they documented that the post-issue deterioration in operating performance cannot be attributed to the reduced managerial ownership.

Loughran and Ritter (1997) analysed the post-issue operating performance of 1,338 seasoned equity offerings for the period 1979 to 1989. They reported that the issuing firms' profitability as measured by profit margin, return on assets and operating income to assets ratio, declined significantly after their issue, compared with the non-issuing firms matched by assets size, industry and profitability. They also found that issuers usually had substantial increase in profitability prior to the offerings.

Mikkelson, Partch and Shah (1997) examined 283 IPOs from 1980 to 1983 and documented that median operating income of issuing firms after adjustment for the industry-matched firms was nine per cent of assets in the year before going public which declined to minus two per cent of assets by first year after going public. They found that the post-issue operating performance was not related to the decline of managerial ownership. The ownership stake of officers and directors declined substantially after the offering but the operating performance exhibited a substantial decline only in the first year subsequent to the issue.

Teoh, Welch and Wong (1998) examined the post-issue operating performance and earnings management for a sample of 1,265 seasoned equity offerings of firms listed on Securities Data Corporation from January 1970 to September 1989. They found that

the discretionary current accruals of the seasoned issuers increased significantly prior to the offering which however decreased to normal levels in the post-issue period. Such reported increase in accruals in the pre-IPO period and their subsequent decline in the post-issue could be a result of earnings management.

The finding of Teoh et al. (1998) was confirmed by Rangan (1998). In his study on the quarterly data of 230 seasoned issuers offered during 1987-1990, Rangan reported that the discretionary accruals in his sample increased substantially in the four quarters preceding the offering and then declined significantly in the following eight quarters. He found evidence of earnings management around the offering date and reported that earnings management influenced the subsequent underperformance and stock returns in the subsequent years. It implies that market overvalues firms because of increase in discretionary earnings and due to poor earnings there is a negative reaction of stock prices.

Chan, Wang and Wei (2003) examined the long run performance of 570 A-share and 39 B-share IPOs issued in China. After three years from listing, A-share IPOs were found to underperform their non-IPO benchmarks while B-share IPOs outperformed their non-IPO benchmarks. They found that the post-issue stock returns for A-share IPOs had a positive relation with changes in operating return on assets, changes in operating cash flows on total assets and changes in growth rate of sales. This finding implies that in the long run, stock price performance exhibits a reflection of a firm's operating performance.

Khurshed, Paleari and Vismara (2003) analyzed the operating and share price performance of 216 firms listed on the Official List of London Stock Exchange and 195 firms listed on Alternative Investment Market (AIM) during 1995-1999. They reported that the performance of firms going public on the Official List of the London Stock Exchange deteriorated significantly after the issue. On the contrary, operating performance of IPO firms on the Alternative Investment Market (AIM) was not found to decline.

Kim, Kitsabunnarat and Nofsinger (2004) examined the operating performance of 133 IPOs in Thailand. They found a decline in operating performance of issuing firms and reported that the magnitude of the decrease in performance after issue is much greater

in Thailand than in the US. They suggested that a curvilinear relationship exists between post-IPO managerial ownership and post-IPO operating performance.

The literature on the IPO is vast and expanding. The empirical evidence shows that the IPO firms' stock return performance and operating performance deteriorates in the consequent years after going public. Although no unanimous explanations yet exist for underperformance, literature suggests earnings management, timing of the offer and agency problems after going public as the major reasons causing such underperformance. This study aims to extend the IPOs literature on emerging markets geographically by investigating the share price and operating performances of the Indian IPOs in after-market period.

III- Research Methodology

The study is based on IPOs listed on BSE between June 1992 and March 31, 2001. The study has been restricted to the companies, which raised capital during the period under study because new regulatory regime became functional from 1992 onwards with Securities and Exchanges Board of India (SEBI) replacing the Controller of Capital Issues (CCI). Furthermore, only those companies have been included which have at least five year trading history from the date of listing and are listed on BSE as on March 31, 2006. Companies with missing price data have been excluded from the sample. These criterions resulted in a sample of 300 IPOs. Data on the IPOs has been collected from Capitaline database.

For analyzing the operating performance of issuing firms accounting ratios have been used. To be consistent with previous research, the study focuses on the median levels of the performance measures in place of mean levels so as to reduce the possible effects of outliers and skewness in the operating performance measures on the results. The following ratios have been computed for analyzing the operating performance prior to and subsequent to the issue:

1. Return on Assets (ROA) = Operating profit before depreciation and amortization divided by total assets
2. Return on Equity (ROE) = Net profit after tax divided by total equity
3. Growth in Sales = Growth in net sales

4. Operating Cash Flows on Assets (CFOA) = Operating income minus capital expenditure divided by total assets
5. Assets Turnover Ratio (AT) = Net Sales divided by total assets
6. Capital expenditures Growth Rate (CE) = Growth in capital expenditure

The year of privatization (year 0) has not been included in the analysis as it includes both private and public ownership phases of the firm. In order to examine whether there is any relationship between stock underperformance and operating performance of IPO firms, buy and hold returns have been calculated for the issuing firms for three years after the issue.

IV- Analysis and Interpretations

In order to analyze the post-issue operating performance of IPO firms, the changes in operating performance relative to pre-issue period have been examined. It has been tested whether firms signal their value at the time of issue through underpricing and also whether the operating performance of issuing firms is reflected in their long-run stock price performance. Summary statistics for the sample are provided in Table I and Table II. Table I shows the number and percentage of IPOs issued during the sample period. The number of IPO firms in the sample varies considerably from year to year. The largest number of IPOs have taken place in 1994-95, followed by 1993-94, however least number of IPOs took place in 1997-98. Almost 78.67% of IPO issues in the sample took place before April 1996 and only 64 IPOs occurred in the subsequent years.

Table I: Number of IPOs per Year

Year	Number of Issues	Percentage
1992-93	42	14%
1993-94	68	22.67%
1994-95	97	32.33%
1995-96	29	9.67%
1996-97	7	2.33%
1997-98	4	1.33%
1998-99	6	2%
1999-2000	21	7%
2000-2001	26	8.67%
Total	300	100

The characteristics of the sample are outlined in Table II. The median offer price is Rs.28 and the mean offer price is Rs.48.48. The mean gross proceeds raised by the sample firms is Rs.308.85 million while the minimum gross proceeds is Rs. 8.5 million and the maximum is Rs.8500 million. The mean (median) initial return for these firms is 96.85 (38.92) percent; however the maximum and minimum initial returns are 4328.57 percent and -87.97 percent respectively. The mean (median) age of sample IPOs is 16.96 (13) years and the mean difference between the offer date and listing date has been found to be of 101.43 days as compared to the median listing delay of 77 days.

Table II: Characteristics of IPO Sample

Descriptive Measure	Mean	Median	Maximum	Minimum
Offer Price (Rs.)	48.48	28	900	10
Gross Proceeds (Rs. million)	308.85	50	8500	8.5
Initial Returns (%)	96.85	38.92	4328.57	-87.97
Age	16.96	13	97	1
Listing Delay (Days)	101.43	77	636	17

In order to find out whether the pre-IPO operating performance and pricing variables are related to the level of underpricing, the IPO sample has been split by median underpricing. The comparison of performance variables on the basis of underpricing level can be observed from Table III.

Underpricing is defined as the difference in the closing price on the listing day and the offering price as a proportion of the offering price. Several studies hypothesize that IPO firms signal their quality to the market by underpricing their stock. Allen and Faulhaber (1989), Grinblatt and Hwang (1989) and Welch (1989) assume the existence of information asymmetry between issuers and investors in the IPO process. The high quality firms are believed to issue a small portion of shares at their first public issue which are generally underpriced however they sell more shares in subsequent offerings at higher prices when the information asymmetry is minimized. On the contrary, the low value firms either do not underprice their offerings

or resort to window dressing which leads to inferior post-offering operating performance by such firms. Thus, the signaling models of underpricing suggest that IPO firms that underprice their offerings should exhibit superior operating performance in comparison to those that do not underprice. They also predict that issues with large underpricing are more likely to reissue through subsequent offerings and promoters of such issues would hold more shares in the portfolio, which they would issue in the subsequent offers.

Table III:
Summary Statistics of IPO firms Split by Underpricing

Variable	Underpricing ≤ 38.92%	Underpricing > 38.92%	Wilcoxon Two-Sample Test
Median Gross Proceeds (Rs. million)	60	40.0325	-10.493 (.000)***
Median Offer Price (Rs.)	30	10	-2.326 (.020)**
Median Return on Assets (%)	17.28	13.90	-1.655 (.098)*
Median Operating Cash Flow on Assets (%)	6.09	1.49	-1.150 (.250)
Median Return on Equity (%)	21.99	17.71	-2.536 (.011)**
Median Sales Growth (%)	15.2	2.42	-.546 (.585)
Median Assets Turnover (%)	33.71	37.23	-.182 (.856)
Median Capital Expenditure Growth (%)	.405	.022	-.785 (.432)

Values in the parenthesis are the p-values.
* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

In order to test for signaling hypothesis, the operating performance variables have been analyzed for the year prior to the year of issue (Year -1). The Wilcoxon two-sample signed rank statistic has been applied to test the null hypothesis that there is no difference in medians between the low and high underpricing groups against the alternative hypothesis of a difference in medians between the two sets.

There are no significant differences between the two groups split by level of underpricing for median operating cash flow on total assets, median sales growth, median assets turnover and median capital

expenditures, as measured one year prior to the IPO. The difference in median exists for offer price, gross proceeds, return on assets and return on equity; otherwise the two groups are indistinguishable based on information observable prior to the IPO. Prior studies found little or no support for the signaling models. Michealy and Shaw (1994), Jagadeesh, Weinstein, and Welch (1993), Garfinkel (1993) and Jain and Kini (1994) did not find any clear evidence to support the signaling models of underpricing.

Table IV:
Changes in operating performance of IPO firms surrounding the issuing year

Measure of Operating Performance	Year Relative to the IPO year			
	-1 to 0	-1 to 1	-1 to 2	-1 to 3
Return on Assets	-1.58*	-1.86**	-3.08	-3.92
Operating Cash Flow on Assets	-0.43	-0.66	0.63	0.06
Return on Equity	-0.38**	-1.38***	-5.41***	-6.11***
Sales Growth	0.78	12.265**	3.705	2.435
Asset Turnover	-13.71	-9.99	-18.33	-15.35
Capital Expenditure Growth	0.55	1.02	-0.17**	.0.02*

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Table IV reports the median changes in the operating performance of IPO firms surrounding the issuing year. The change in operating performance of issuing firms has been measured relative to year -1 (one year preceding the IPO). The performance of companies going public has been found to decline after the IPO. There is a significant decline in median return on assets from year -1 to year 0 and from year -1 to year 1 but the decline in later years is not significant. Operating cash flow return on assets has declined in the year following the IPO however it has increased in second and third year after issue relative to year prior to issue. Return on equity has declined significantly till the third year after the IPO. Sales growth is positive throughout the three years after issue. In spite of the sales growth, there is a decline in assets turnover which indicates that issuing firms increase their assets faster as compared to the sales following the IPO issue. Capital expenditure growth rate has also remained positive, except for a decline from year -1 to +2.

Results indicate that return on assets, return on equity and assets turnover decline after the issuance, regardless of the event window used. However, operating cash flow on assets declines in the first year but increases in the subsequent years. If changes in performance from year t-1 to t+1 are measured, return on assets has declined by 1.86%, return on equity by1.38%, operating cash flow on assets by -0.66% and assets turnover by -9.99%. These results are consistent with Jain and Kini (1994) and Mikkelson et al. (1997) who found that IPO firms in U.S. exhibit a decline in their post-issuance operating performance.

The post-IPO operating performance has declined as compared to the pre-IPO levels. The decline in return on assets; return on equity and assets turnover is not related to a decline in business activity. However, these findings are in line with the hypothesis of window dressing which states that the managers attempt to window-dress their accounting reports prior to going public, due to which pre-IPO performance gets over-stated and post-IPO performance declines.

The relationship between operating performance and stock performance

In order to determine the relationship between operating performance and stock performance of IPO firms cross-sectional regressions have been used, with changes in the ratios as independent and stock performance as dependent variable. For post-issuance stock returns, buy and hold abnormal returns (BHAR) have been computed. This investment strategy presumes that an initial public offering is received at the first closing price and is kept in the portfolio over a period of 'T' months.

$$BHAR_{iT} = \prod_{t=1}^{T}(1+R_{it}) - \prod_{t=1}^{T}(1+R_{mt})$$

Where, BHARiT is the buy-and-hold abnormal return for firm i during holding period T, R_{it} is the raw return for firm i in month t, and R_{mt} is the return of the BSE-sensex used as the benchmark return.

The aftermarket period includes the 36 months subsequent to IPO date, where months are defined as successive 21 trading-days periods relative to the IPO date. Thus, first month consists of event days 1-21; second month consists of event day 22 through day 42 after

listing, and so on. The BHARs have been found to be positive in the first year, though the aftermarket returns are negative in the next two years.

Table V: Cross-sectional regressions of post-issuing stock returns on operating performance

Variable	Intercept	ΔROA	ΔCFOA	ΔSale_G	ΔROE	ΔAT	ΔCE	R^2
Panel A: Regression results for one year buy and hold returns								
Coeff.	16.020*	.013*		-.019	.283***	-.053	-.001	.076
t-value	(1.77)	(.127)		(-.263)	(2.927)	(-.635)	(-.012)	
Coeff.	16.638*		.043	-.020	.293***	-.047	-.001	.078
t-value	(1.835)		(601)	(-.274)	(3.782)	(-.615)	(-.008)	
Panel B: Regression results for two years buy and hold returns								
Coeff.	-26.995*	-.128		.083	.552***	-.168*	.030	.196
t-value	(-2.004)	(-1.212)		(1.130)	(5.584)	(-1.844)	(.413)	
Coeff.	-26.767**		.034	.083	.488***	-.206**	.026	.188
t-value	(-1.966)		(.458)	(1.113)	(5.745)	(-2.434)	(.344)	
Panel C: Regression results for three years buy and hold returns								
Coeff.	-3.766	.021		.088	.307*	.116	.091	.162
t-value	(-.305)	(.180)		(1.023)	(2.812)	(1.184)	(1.602)	
Coeff.	-5.778		.102	.089	.316***	.132	.121	.170
t-value	(-.467)		(1.141)	(1.045)	(3.437)	(1.437)	(1.350)	

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Table V reports the results of cross-sectional regressions of post-issuance stock returns on operating performance. The 1-year and 3-year abnormal returns are positively related to changes in return on assets and 2-year and 3-year abnormal returns are positively related to change in sales growth and capital expenditure growth. Change in operating cash flow on assets and return on equity is positively related to abnormal returns in all three years. The R^2 has not been found to be very high in all the three models which signifies that explanatory power of these models is observed to be low. It may be, because there are numerous quantitative and qualitative factors that can explain the stock returns. Though the explanatory power of the changes in operating performance has been found to be lower but it is important for adjusting the stock prices. This evidence also contradicts the conjecture that stock markets in India are purely driven by speculation. Instead, the stock price performance is a partial reflection of the operating performance over the long run.

V- Conclusion

The purpose of this paper was to examine the post-issue operating performance of Indian IPOs. The empirical evidence shows that the IPO firms' stock return performance and operating performance deteriorates in the subsequent years after going public. The new issues of IPO firms are priced in anticipation that profit margins will increase beyond their pre-IPO levels but in the long-run such profit margins have been found to decline in the post-issue period. It has been examined whether the operating performance of IPO firms is reflected in their long-run stock price performance and whether they signal their value at the time of issue through underpricing.

Using several performance measures, it has been found that IPO firms are not able to sustain their pre-IPO levels of profitability in the after-market period. No significant difference has been found in the operating performance of the low and high underpricing groups of IPO firms. Similar to previous studies, this study does not find absolute support for signaling hypothesis. The results imply that issuing firms are unable to maintain their pre-issue performance levels in the post-issue period. The explanatory power of the operating performance measures for explaining post-issuing stock returns is quite low but changes in the operating measures is reflected (though partially) in the stock price performance.

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