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RELATIONSHIP BETWEEN LONG-RUN MARKET PERFORMANCES OF IPO'S AND OPERATING PERFORMANCE OF IPO ISSUING COMPANIES: AN ANALYSIS

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ABSTRACT

This paper investigates the relationship between long-run market returns and post-issue operating performance of 36 Indian companies over a three-year period. Karl Pearson Correlation and Cross-Sectional Regression have been employed to test the causality between the two. A positive correlation is detected between the major operating performance measures and post issue long-run market returns. The given relation is further strengthened by positive and significant regression coefficients of sales and sales growth rate of companies, showing a direct influence on long run market returns of IPOs. Thus, the paper endeavors to provide an empirical evidence that post issue operating performance has a significant role in governing the long-term performance of stocks in the market post IPO.

KEYWORDS: *Cross Sectional Regression, Long-Run Market Performance, CMAR, Operating Performance.*

Introduction

An Initial Public Offering (IPO) refers to the first offer by the company for subscription of its shares to the public. Prior to IPO, the company is considered as a private company where its shares are held by relatively small number of shareholders, consisting early investors such as founders and their family and friends. On the other hand, a public company refers to a company in which company can offer its shares to public at large. The term public covers each and every individual or institutional investor other than the early investors who are willing to invest in the company. IPO is also referred to as "going public", as it allows a company to raise funds from the public. IPO helps fast growing company to raise additional funds necessary for its future growth prospects, which can't be further met by small group of early investors or other sources of finance such as loans and borrowings from banks or NBFCs and etc. IPO also renders many other advantages to the company, namely, lower cost of capital, large and diverse group of investors which prevents concentration of decision making power in few hands, facilitates acquisition of other companies and many more. At the same time IPO yields benefits to the investors as well. Investors find investment in stocks of the company an attractive alternative as compared to other investment options as it allows higher return in a lesser period of time.

However, an investment in the stock market is a two-edged sword, having darker and lighter sides simultaneously. Thus, an investor needs to analyze all the factors influencing stock prices before investing in the shares. A wide range of analytical tools and techniques are present to anlayse these factors, among which Fundamental Analysis and Technical Analysis are the two prominent analytical techniques that are generally used. Fundamental analysis refers to an approach in which an investor studies the economic factors known as fundamentals, which are present in the financial reports and other

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economic reports produced by the company. Some of these factors are company's earnings history, leverage levels, profitability, growth etc. In the said approach, the analyst tries to estimate the intrinsic value of the stock by looking at the fundamentals or the operating performance of the company. If a share is traded at a price below such intrinsic value, the investor seeks to buy that share as he expects share price to rise in future. On the other hand, if share is traded at a price above intrinsic value he expects the opposite.

On the contrary, Technical Analysis uses statistical analysis to predict the future market price of a share based on its past performance. In other words, an investor is only making a use of statistics and no importance is given to the fundamentals of the company. The primarily assumption behind technical analysis is that stocks' price movements repeat itself and can be used to forecast the appropriate time to buy and sell stocks. A fundamental analyst uses financial reports of the company whereas various analytical charts are studied by a technical analyst. A technical analyst only has one aim, to sell the stock at an inflated price as compared to its purchase price in short run. On the other side, fundamental analyst follows relatively a long-term approach to analyze the market. An individual can be regarded either as "investor or trader" on the basis of method of analysis adopted. An investor will always have a long-term goal as compared to a trader. Hence, an investor will invest in the stocks that will increase in value over a long period of time using fundamental analysis as compared to the trader who will buy stock with an aim to sell it at a greater price in the short run with the help of technical analysis. Technical analysis helps a trader to earn high profits in a short span of time, say weeks, days or even minutes but this frequent buy and sell trade increases the volatility of the market and leads to speculation. There is a strong relationship between volatility and market performance. Volatility tends to decline as the stock market's performance rises and increase as the stock market falls. In addition, when volatility increases, risk increases and returns decrease. Thus, stock market performance improves only when funds are infused for a long period of time and this is only possible with the help of investors adopting fundamental analysis. Also, this is important to know whether in practice investors or fundamental analyst evaluates operating performance to forecast long term performance of stocks in the market post IPO or not.

In India, major research work is carried out in the area of post IPO stock price behaviour and long run operating performance of companies. Past studies suggest that regardless of all the perceived benefits of IPOs for the companies and the investors, a long run decline in post issue performance have been empirically verified by a large number of finance researchers. Three probable factors have been identified by the researchers for such a decline. First, is the origin of principal-agent problem once the company "go public". This inflates agency cost as the contention between owners and managers widens due to decline in ownership of early investors and dilution of their managerial powers post IPO(Jensen & Meckling, 1976). Second, is pre-issue earnings management, where the company adjusts their discretionary currentaccruals in such a way that its net income grows before, peaks during and declines after issue period (Teoh, Welch, & Wong, 1998). Third, is the timing of the IPO as per the market conditions. Companies come out with public issue at the time when it is performing extraordinarily good or during times when its shares can be valued high (Pagano, Panetta, & Zingales, 1998). Till date, most of the empirical researches are focussed on the post IPO stock price behaviour and long run operating performance of companies. There is very less research work present in regardto the association between long-run market returns and post-issue operating performance of IPOs. Thus, this study attempts to study the above regard and tries to throw some light over the relation between operating performance and valuation of stocks in case of Indian stock market or putting in other words, whether a fundamental analyst evaluates operating performance to forecast long term performance of stocks in the market post IPO or not?

Data and Methodology

The study uses data of IPOs listed with NSE during April 2010 to March 2013. Further, NSE listed companies having at least three years historic trade data from the date of listing, is chosen as the inclusion criteria of the study. Based on the above criterion, 36 companies are identified (Table 1) and remaining are excluded from the study.

Table 1: Number of IPOs per Year

Year	No of IPOs
2010-11	17
2011-12	15
2012-13	4
Total	**36**

Following (Chi & Carol, 2005), three-year cumulative market-adjusted returns (CMAR) exhibits long term market returns of each IPO. It is calculated for a period of thirty-six months, following the first month of trading. The monthly return is measured by comparing the closing price on the last trading day of each month with the closing price of the previous month. These returns exclude the first trading month, therefore the initial under pricing. Nifty50 represents market index. Following (Ritter, 1991), long-run returns are calculated as follow:

$$\text{CMAR}= \sum_{t=2}^{t=37} [\ln (Pi,t\ /Pi,t-1) - \ln(Im,t/\ Im,t-1)]$$

Where,

CMAR: Cumulative market-adjusted return for stock i over a thirty-six-month period after listing

$P(i,t)$: Closing price of the stock i

$I(m,t)$: Market index in the t^{th} month

Operating performance is represented with the help of several measures. In order to match the time horizon with the three-year market-adjusted returns, we use the average of the operating measures from the listing year (year 0) to two years after listing (year 2) resulting in 3 years figures. (Collins,Maydew &Weiss, 1997)in their paper titled "Changes in the Value-Relevance of Earnings and Book Values over the Past Forty Years" found that earnings and profitability are positively related to share prices and annual stock returns. Thus, if operating performance influences market return than it can be inferred that companies with better operating performance to have high market returns in the long run. Hence in our study, Return on Asset (ROA) and Asset Turnover(AST) are used as a proxy for profitability and efficiency of the companies respectively.

(Levis, 1993)and (Khurshed, 1999) explored during their research that bigger firms outweigh smaller firm in terms of better growth prospects and opportunities. The probable reason is that bigger firms are better quality firms as compared to smaller firms and hence better long term performers. Therefore, in our study size of the company is represented by sales of the company. According firms with high sales growth are likely to better long-term performance.

Level of leverage is determined by Debt Asset Ratio (DST). Leverage refers to the debt amount that a firm uses in its capital structure. (Modiglian & Miller, 1963) proposes high debt leads to increased firm value. (Jensen M. C., 1986) explored that managers of levered firms are less likely to invest in projects giving poor returns as they are left with lower cash flows after fixed periodic payments of principal and interest as compared to unlevered firms. Table 2 shows definitions of various operating performance measures.

Table 2: Definitions of Operating Performance Measures

ROA	Return on assets (ratio in decimal form): net income before tax divided by total assets
Sales	Total sales (Rs. in crores)
SG	Sales-growth rate (in decimal form): total sales in the current year minus total sales in the previous year, divided by total sales in the previous year
AST	Asset turnover (ratio in decimal form): total sales divided by total assets
DAR	Debt-to-asset ratio (ratio in decimal form): total debt divided by total assets

To test the relation between the post-issue operating performance and the corresponding three-year cumulative market-adjusted returns of IPOs, following hypotheses are formed:

H_1 There is a positive relation between the average return on assets from year 0 to year 2 and the three-year market-adjusted returns of IPOs.

H_2 There is a negative relation between the average sales from year 0 to year 2 and the three-year market-adjusted returns of IPOs.

H_3 There is a positive relation between the average sales-growth rates from year 0 to year 2 and the three-year market-adjusted returns of IPOs.

H_4 There is a positive relation between the average asset turnovers from year 0 to year 2 and the three-year market-adjusted returns of IPOs.

H_5 There is a positive relation between the average debt-asset ratios from year 0 to year 2 and the three-year market-adjusted returns of IPOs.

Relationship between long-run market returns and post-issue operating performance of IPOs is empirically verified using ordinary least squares and the results have been corrected for heteroscedasticity. Karl Pearson Correlation has also applied to know the degree of association between long-run market returns and post-issue operating performance of IPOs. The same has been calculated as follows:

$$r = \frac{\sum(x-\overline{x})(y-\overline{y})}{\sqrt{\sum(x-\overline{x})^2 \sum(y-\overline{y})^2}}$$

To verify the causality following regression equation is estimated:

$$CMAR36_i = \alpha + \beta_1 ROA_i + \beta_2 \text{ Ln } (sales_i) + \beta_3 SG_i + \beta_4 AST_i + \beta_5 DAR_i + u_i$$

In the above equation, CMAR is the dependent variable representing three-year cumulative market-adjusted returns of 36 companies which got listed with NSE from April 2010 to March 2013. The independent variables are the average operating measures from year 0 to year 2, return on assets (ROA), sales, sales growth rates (SG), asset turnover (AST) and debt-to-asset ratio (DAR).

Results

Cross sectional regression analysis revealed a strong relationship between long-run market returns and post-issue operating performance of IPOs. The value of adjusted R^2 is 25.08 percent. Statistical analysis shows a positive but statistically insignificant relationship between long-run markets returns i.e. CMAR and Return on Assets (ROA) at 5% level of significance. This indicates that firms with higher post issue ROA are expected to have better market performance in the long run.

Consistent with the results for U.K. IPOs in (Levis, 1993), positive and significant relationship is found between coefficient of sales of the companies and three-year market-adjusted returns of IPOs at 5% level of significance. This indicates that Indian companies with higher sales post IPOs are assumed to have improved long run market returns. Empirical tests further affirm that coefficient of sales growth rate of companies also has strong positive influence on long run market returns of IPOs at 5% level of significance. Hence, greater the future development prospectus of the company higher will be return on its shares in the long run. Thus, it can be inferred that investors perceive size of the company represented by sales and sales growth rate as two of most important factors while estimating future stock prices in Indian stock market.

Further, a positive and insignificant association is evident between Asset Turnover and CMAR at 5% level of significance. Asset turnover ratio is regarded as an efficiency ratio which measures the efficiency of a company to generate sales from per rupee invested in assets. Thus, after listing when asset of the company increases sales are also expected to move in the same direction thereby indicating higher efficiency. Hence, stocks of firms with greater asset turnover ratio post IPO are supposed to realise superior market return in the long run. Lastly, the study explains a negative and insignificant relationship between Debt asset ratio (DAR) and three-year market-adjusted returns of IPOs at 5% level of significance. However, it is found to be significant at 10% level of significance. The above result does not support the theory proposed by (Modiglian & Miller, 1963)which states that “the firm should use as much debt capital as possible tomaximize its value”. Hence, Indian companies with higher levels of debts in their capital structure are assumed to have lower stock market return in the long run.

Table 3 Demonstrates estimation results of the cross-sectional analysis after correcting for heteroscedasticity.

Table 3: Regression Analysis

Variable	Coefficient	t-statistics	p value
Intercept	-2.9	-3.66	0.001
ROA	2.10	1.05	0.303
LN (SALES)	0.31	2.26	0.032
SG	2.17	2.67	0.012
AST	0.27	0.69	0.495
DAR	-3.77	-1.68	0.104
R^2	0.36		
Adjusted R^2	0.25		
F-statistics	3.28		
P-value (F-statistics)	0.018		

Table 4 Illustrates results of Karl person coefficient analysis between independent and dependent variables. The correlations among dependent variables are not high enough to cause multicollinearity in the cross-sectional analysis.

Table 4: Correlation Matrix

	CMAR	ROA	SALES	SG	AST	DAR
CMAR	1					
ROA	0.348*	1				
SALES	0.354*	0.233*	1			
SG	0.340*	0.067*	0.030*	1		
AST	0.023*	-0.132*	0.262*	-0.091*	1	
DAR	-0.011*	-0.120*	0.153*	0.571*	-0.178*	1
* significant at 1% level of significance (two tailed)						

The study concludes that post issue operating performance plays a significant role in valuation of stock price in Indian stock market and fundamental analyst evaluates operating performance to forecast long term performance of stocks in the market post IPO.

Conclusion

This purpose of this paper is to evaluate the relationship between long-run market returns and post-issue operating performance of IPOs. Cross sectional regression and Karl Pearson correlation have been employed to validate the relationship. Long run market return is represented by cumulative market-adjusted return (CMAR) which is calculated over a thirty-six-month period post IPO. Operating performance measures such as Return on assets (ROA), sales, sales growth rates (SG), asset turnover (AST) and debt-to-asset ratio (DAR) are used. To match the time horizon with the three-year market-adjusted returns, we deployed the average of the operating measures, from the listing year (year 0) to two years after listing (year 2) resulting in 3 years figures. The study concludes that majority operating measures are positively correlated to cumulative market-adjusted return (CMAR). The given relation is further strengthened by positive and significant regression coefficients of sales and sales growth rate of companies, showing a direct influence on long run market returns of IPOs. However, study also witness a negative and significant relationship between Debt asset ratio (DAR) and three-year market-adjusted returns of IPOs at 10% level of significance. To conclude, the study provides sufficient empirical evidence that post issue ope (Krishnan, Ivanov, Masulis, & Singh, 2011)rating performance has a significant role in governing the long term performance of stocks in the market post IPO.

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Appendix 1

Name of the issue	CMAR	ROA	LN(SALES)	SG	AST	DAR
INDO THAI SECURITIES LIMITED	-0.3520	0.0098	2.1278	0.7821	0.2248	0.0007
FLEXITUFF INTERNATIONAL LIMITED	-0.3520	0.0471	6.6885	0.2597	0.9077	0.1699
ONELIFE CAPITAL ADVISORS LIMITED	-0.5708	-0.0065	1.4002	7.4685	0.0523	0.0000
Prakash Constrowell Ltd	-4.9788	0.0494	5.0662	0.0677	1.0088	0.0019
PG ELECTROPLAST LIMITED	-1.5937	-0.0434	5.4971	-0.1315	0.8620	0.1203
TD POWER SYSTEMS LIMITED	-0.2119	0.0827	6.1089	-0.0696	0.6640	0.0000
SRS Limited	-0.8243	0.0417	7.9455	0.1919	2.2530	0.0339
BROOKS LABORATORIES LIMITED	0.0465	0.0711	4.2853	0.1868	0.5819	0.0000
TREE HOUSE EDUCATION & ACCESSORIES LIMITED	0.6620	0.1097	4.7144	0.6098	0.2618	0.0538
L&T FINANCE HOLDINGS LIMITED	-0.1824	0.0433	5.1386	6.5636	0.0376	0.0185
INVENTURE GROWTH AND SECURITIES LTD	-2.9845	0.0160	2.4169	-0.3114	0.0524	0.0295
RUSHIL DECOR LIMITED	-1.4137	0.0294	5.2135	0.2835	0.7012	0.2636
SANGHVI FORGING AND ENGINEERING LTD	-1.4432	0.0039	3.8310	0.1588	0.2690	0.1706
MUTHOOT FINANCE LIMITED	-0.1549	0.0517	8.4980	0.3581	0.1887	0.2691
SHILPI CABLE TECHNOLOGIES LIMITED	0.4818	0.0688	6.5025	0.6421	1.3215	0.1713
Bharti Infratel Limited	0.4961	0.0916	8.5040	0.0905	0.2233	0.0000
PC Jeweller Limited	0.6613	0.1115	8.5449	0.2587	1.2584	0.0002
Speciality Restaurants Limited	-0.6175	0.0652	5.5652	0.1526	0.7594	0.0010
Tribhovandas Bhimji Zaveri Limited	-0.2745	0.0661	7.4967	0.1191	1.4317	0.0128
RAVI KUMAR DISTILLERIES LIMITED	-2.9108	0.0013	3.8606	-0.0444	0.3082	0.0658
MOIL LIMITED	-0.6477	0.2616	6.9050	0.0138	0.3678	0.0000
GRAVITA INDIA LIMITED	-1.4573	0.1118	5.3612	0.3717	1.6715	0.0228
COAL INDIA LIMITED	-0.2061	0.2515	5.9698	-0.0745	0.0129	0.0360
GYSCOAL ALLOYS LIMITED	-1.0684	0.0200	5.4328	0.2210	1.1299	0.1073
PRESTIGE ESTATES PROJECTS LIMITED	-0.4413	0.0573	7.0563	0.3418	0.2468	0.0405
OBEROI REALTY LIMITED	-0.1153	0.1121	6.1080	3.0714	0.1511	0.0000
COMMERCIAL ENGINEERS & BODY BUILDERS CO LIMITED	-2.4437	0.0658	5.9163	0.4671	0.8239	0.0514
CANTABIL RETAIL INDIA LIMITED	-1.4573	-0.1235	5.0133	-0.1679	0.8637	0.0021
RAMKY INFRASTRUCTURE LIMITED	-2.2531	0.0482	7.9896	0.1937	0.7981	0.0377
EROS INTERNATIONAL MEDIA LIMITED	0.0383	0.1130	6.5620	0.2421	0.5465	0.0633
GUJARAT PIPAVAV PORT LIMITED	-0.2215	0.0639	6.0873	0.2301	0.2601	0.3405
BAJAJ CORP LIMITED	-1.0757	0.3042	6.1487	0.2287	0.9426	0.0000
HINDUSTAN MEDIA VENTURES LIMITED	-0.4073	0.1607	6.3467	0.7749	0.9848	0.0000
JAYPEE INFRATECH LIMITED	-1.0927	0.0944	7.4831	1.2094	0.1498	0.4750
PERSISTENT SYSTEMS LIMITED	0.1491	0.0983	5.0314	0.4459	0.7009	0.0585
OMKAR SPECIALITY CHEMICALS LIMITED	1.1024	0.1936	6.6719	0.2559	0.8091	0.0006

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