Chapter -2-

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Review of the Literature, Objective and Research Methodology

This chapter includes the review of the research work related with the study done in the past, the objectives of the research study and the methodology adopted to analyse the data.

2.1 Review of the Literature

In India, IPOs seems to be low-hanging fruits for the investors. If investors were to get allocations in IPOs and sell these shares on the listing day, then on an average they would be able to get returns higher than the market. However the risk of blocking one’s money in IPOs and getting no allocations is associated with investments in IPOs. The behavior and the determinants of IPO returns on the listing day as well as in long term period has been researched extensively in almost all the major stock exchanges of the world. Here the literature reviews of the previous researches done on the returns behavior of IPOs all over the world including Indian stock market are mentioned below:

Ritter (1984) analyzed the “hot issue” market of 1980, the 15-month period starting from January 1980 and extending through March 1981 during which the average initial return on unseasoned new issues of common stock was 48.4 percent. This average initial return compares with an average of 16.3 percent during the “cold issue” market comprising the rest of the 1977-82 periods. An equilibrium explanation for this difference in average initial returns is investigated but is found to be insufficient. Instead, this hot issue market is found to be associated almost exclusively with natural resource issue. For firms in another industry, a hot issue market is barely perceptible. This research paper documented tremendous disparities between the initial returns from natural resource issues vis-à-vis non natural resource issues in the United States during 1977–82, underlining the role of industry classification in IPO underpricing.

Rock and Kelvin (1986) demonstrated that retail uninformed investors might suffer from a winner’s curse problem. They might get all the allocations that they have asked for in IPOs, which are going to earn very low returns on the day of listing, but
may be rationed out in IPOs, which will give very high returns on the day of listing, because of the high demand that such issues will generate. Thus, retail uninformed investors might not be able to utilize the underpricing inherent in IPOs to their advantage. Besides this, uninformed investors might not be able to fully comprehend the risk factors which are outlined in the offer documents of the IPOs. To this extent, the rating mechanisms introduced in the Indian IPO markets would prove to be useful for the retail investors.

Rock (1986) proposed the “Winner Curse hypothesis” to reasonably explain an IPO’s positive initial return. The hypothesis implies that more uncertain issues should have higher initial returns. Issuers and their investment bankers attempt to reduce information asymmetry and initial returns by disseminating information about the IPO firm. Investors, on the other hand, try to judge the growth potential of a company going public from the available information, which includes age, size, information about promoters, and industry classification.

Allen and Faulhaber’s (1989) empirical evidence suggested the existence of ‘hot-issue’ markets for initial public offerings: in certain periods and in certain industries, new issues are underpriced and rationing occurred. This research paper develops a model consistent with this observation, which assumes the firm itself best knows its prospects. In certain circumstances, firms with the most favorable prospects find it optimal to signal their type by underpricing their initial issue of shares, and investors know that only the best can recoup the cost of this signal from subsequent issues.

Grinblatt and Hwang (1989) developed a signaling model with two signals, two attributes, and a continuum of signal levels and attribute types to explain new issue underpricing. Both the fraction of the new issue retained by the issuer and its offering price convey to investors the unobservable "intrinsic" value of the firm and the variance of its cash flows. Many of the model's comparative statics results are novel, empirically testable, and consistent with the existing empirical evidence on new issues. In particular, the degree of underpricing, which can be inferred from observable variables, is positively related to the firm's post-issue share price. This research paper concentrated on asymmetric information prevailing in the IPO market. It assumed that a firm possesses the most valuable information about the prospects of a new project, and that the issuers explicitly consider the possibilities of future equity
issues when deciding IPO prices. Signaling theory argued that high-quality firms signal the true value of their shares by offering them at a discount, and then retain some of the shares of the new issues in their personal portfolio. Underpricing created a good impression in investors’ minds, which helped the firm to sell the subsequent seasoned equity offerings (SEOs) at attractive prices. Low-quality firms deterred from mimicking the high-quality firms, because they were less likely to reap the benefits of IPO underpricing by selling their seasoned issues at higher prices. Thus, signaling models suggested by the authors that greatly underpriced issues are more likely to reissue or come back with SEOs.

Jegadeesh et al. (1989) empirically examined the implications of signaling theory, using firm, commitment IPOs in the United States over 1980–86. But they found only a weak association between IPO underpricing and subsequent SEOs, which questioned signaling theory’s explanatory power. This research paper investigated the long-term performance of firms that issued seasoned equity relative to a variety of benchmarks and found that these firms significantly underperform all of the chosen benchmarks over the five years following the equity issues. Across SEOs, similar levels of underperformance is found for both small and large firms, and both growth firms and value firms. The paper also indicated that factor-model benchmarks are misspecified. Hence inferences on SEO underperformance based on such benchmarks are misleading. The SEOs underperform their benchmarks by twice as much within earnings announcement windows as they do outside these windows.

Ritter (1991) found that the underpricing of initial public offerings (IPOs) that have been widely documented appeared to be a short-run phenomenon. Issuing firms during 1975-84 substantially underperformed a sample of matching firms from the closing price on the first day of public trading to their three-year anniversaries. There was a substantial variation in the underperformance year-to-year and across industries, with companies that went public in high-volume years faring the worst. The patterns were consistent with an IPO market in which (1) investors are periodically overoptimistic about the earning potential of young growth companies, and (2) firms take advantage of these "windows of opportunity."

Reena Aggarwal et al. (1993) found the initial one-day returns to be 78.5 percent, 16.7 percent, and 2.8 percent for Brazil, Chile, and Mexico. The long-run mean
market-adjusted returns were found to be -47.0 percent in Brazil after three years. The three-year mean excess return was -23.7 percent for Chile and the one-year mean excess return was -19.6 percent for Mexico. They indicated long-run underperformance. For Brazil, there seems to be a negative relationship between the initial returns and the long-run returns, suggesting the overpricing of IPOs on the first trading day. These findings for the Latin American markets were similar to the U.S. and UK pattern of long-run underperformance. Based on the international evidence, it appears that these long-run patterns were not just sample or country-specific. This phenomenon, in fact, existed in nearly all markets except the U.S. and UK.

Kasim Alli et al. (1994) analyzed the underpricing of IPOs of financial institutions and found that in general, IPOs of financial institutions are significantly less underpriced than those of non-financial institutions. These results are consistent with previous empirical studies on the testing of information asymmetry hypothesis that the less ex ante uncertainty about the value of the new issues, the smaller the average underpricing. These results hold even after controlling for differences in underwriters’ reputation, aftermarket volatility, and years since establishment. However, results also show that the difference in the underpricing between S&L conversion and non-financial firm IPOs disappears once the differences in underwriters’ reputation, aftermarket volatility, and years since establishment have been controlled for. This suggested that the difference in the underpricing between the non-financial institutions and the financial institutions was primarily due to the underpricing of the non-S&L conversion IPOs. Furthermore, results generally indicated that the level of ex ante uncertainty was lower for financial institutions than for non-financial firms. Judging by the size of the average underpricing of the non-S&L conversion financial institution sample (3.84 percent), the ex ante uncertainty associated with the financial institutions (represented by the non-S&L conversions) seemed to be bigger than those of equity carve-outs (1.7 percent) or leveraged buyouts (2.04 percent). The results from this study were more consistent with the information asymmetry hypothesis than the insurance-against-legal-liability hypothesis. The lower level of underpricing for non-S&L conversion financial institutions was also consistent with the regulation hypothesis that the regulations imposed on depository financial institutions helped reduce ex ante uncertainty.
Narsinhan and Raman (1995) analysed the performance of 103 IPOs and found that the initial returns from the IPOs are higher.

Shah (1995) carried out a study on IPOs for the period January 1991 to April 1995 of 2056 IPOs and reported that underpricing on an average was 105.6 percent above the offer price on equally weighted basis and 113.75 percent if weighted by size of the issue. The commonest delay between issue date and listing date is 11 weeks, and it is highly variable. This delay is strongly associated with issue size, where bigger issues tend to have shorter delays. The listing delay had diminished over the years. Because the listing delay is variable, it is incorrect to use simple averages in expressing IPO underpricing; this would be clubbing together returns obtained over different lengths of time. Because this delay is long, it is necessary to measure returns on IPOs in excess of returns on the market index. Hence the focus is on the weekly returns on IPOs in excess of weekly returns on the market index. It is found that the average IPO underpricing comes to 3.8 percent per week by this metric. Very small as well as very large issues had higher initial returns than the issues of medium size.

Ritter and Loughran (1995) found that the companies issuing stock during 1970 to 1990 whether an initial public offering or a seasoned equity offering, have been poor long-run investments for investor. During the five year after the issue, investors had received average returns of only 5 percent per year for companies going public and only 7 percent per year for companies conducting a seasoned equity offer. Book-to-market effects accounted for only a modest portion of the low returns. An investor would have had to invest 44 percent more money in the issuers than in non-issuers in the same size to have the same wealth five years after the offering date. The research paper documented that larger and more established IPOs had given better returns to their investors over the long run compared to their smaller and younger counterparts. These arguments highlighted investor uncertainty as a prime factor in IPO underpricing.

Douglas A Hensler et al (1997) estimated an accelerated failure time (AFT) model to investigate the effects of several characteristics suggested as indicators of firm survival for initial public offerings (IPOs). The results indicated that the survival time for IPOs increases with size, age of the firm at the offering, the initial return, IPO activity level in the market, and the percentage of insider ownership, while the
survival time decreases with increases in the general market level at the time of offering and the number of risk characteristics. Additionally, the survival time is negatively affected if the IPO is in the computer and data, wholesale, restaurant, or airline industries and positively if the IPO is in the optical or drug industries.

Madhusoodan and Thripalraju (1997) conducted a study on data set of 1992 IPOs covering time period 1992-1995 and found that winner’s curse explanation does not hold good. The insurance against legal liability explanation is also not valid as it is not allowed in India. This research paper analyzed the Indian IPO market for the short-term as well as long-term underpricing. They also examined the impact of the issue size on the extent of underpricing in these offerings and the performance of the merchant bankers in pricing these issues. The study indicated that the underpricing in the Indian IPOs in the short-run was higher than the experiences of other countries. In the long-run too, Indian offerings have given high returns compared to negative returns reported from other countries. The study also revealed that none of the merchant bankers showed any better pricing capabilities.

Raghuram Rajan and Henri Servaes (1997) examined data on analyst following for a sample of initial public offerings completed between 1975 and 1987. They did this to observe three well-documented IPO anomalies. They found that higher underpricing leads to increased analyst following. Analysts are overoptimistic about the earnings potential and long term growth prospects of recent IPOs. More firms complete IPOs when analysts are particularly optimistic about the growth prospects of recent IPOs. In the long run, IPOs have better stock performance when analysts ascribe low growth potential rather than high growth potential. These results suggested that the anomalies may be partially driven by over optimism.

Lawrence M Benveniste and Walid Y Busava (1997) compared two mechanism for selling IPOs, the fixed price method and American Book Building. They found that the book building generated higher expected proceeds but exposed the issuer to greater uncertainty, and that it provided the option to sell additional shares that were not underpriced on the margin.

Barnal and Obadullah (1998) analysed the 433 IPOs and also found the initial returns to be higher.
Pandey and Arun Kumar (2001) explored the impact of signal on underpricing. Based on cross sectional data of 1243 IPOs in Indian Market during 1993-1995, they found that realized excess initial returns on IPOs were high on approx 68 percent. They also reported that smaller sized issues tend to have higher initial returns as compared to large issues.

Krishamurti and Kumar (2002) described the environment for making initial public offerings (IPOs) in India and the process itself; and discussed the applicability of various research explanations for underpricing to the Indian Market. It suggested that it will be greater for new firms and issues managed by reputable merchant bankers. The research paper analyzed 1992-1994 data on 386 IPOs to assess their performance and found that the issues with high risk and/or smaller offer prices are more underpriced; and that returns are strongly correlated with subscription levels.

Ritter and Welch (2002) focused on three areas of research on IPOs. These were (1) reasons for going public, (2) the pricing and allocation of shares, and (3) long-run performance and found that that market conditions are the most important factor in the decision to go public. The stage of the firm in its life cycle seemed to be the second important factor. The theories based on asymmetric information were unlikely to explain average first-day returns of 65 percent. Underwriters did not bundle multiple offerings together, which would have lowered the average uncertainty and the need for underpricing in the context of information models.

Ritter (2003) cited behavioral finance to explain severe under pricing of IPOs, noting that if an IPO were underpriced, pre issue stockholders were worse off because their wealth had been diluted. The entrepreneur, on the other hand, received the good news that he or she was suddenly and unexpectedly wealthy because of a higher than expected IPO price. Integrating the wealth increase and dilution, the issuer could be better off on balance. Underwriters take advantage of this mental accounting and severely underpriced many IPO deals.

Jaitley (2004) studied the extent of under pricing shortly following the deregulation of new issue market and found that first day return was on an average 72 percent. This study investigated the pricing of new issues in the Indian equity market during the period shortly following the deregulation of the market for new issues and evaluated the importance of book value and market value estimates in determining issue prices.
as well as prices on the first day of trading. The study also used variables that may reduce uncertainty (age to proxy for awareness of the company) and information asymmetry (the extent of the promoter’s contribution to the new issue) in order to test whether uncertainty and information asymmetry have an impact on pricing of new issues. The result indicated that pricing of new issues appears to be consistent with rational decision-making. No significant differences were found in first day returns between the two groups of companies. There were, however, significant differences between the two groups with respect to relative size of the issue and the difference between the forecasted and current book value. This indicated that the CCI price might be used as a benchmark, which is, then adjusted upwards or downwards to place greater emphasis on expected performance.

Onur Arugaslan et. al. (2004) examined the arguments for “why monitoring considerations create incentives for managers to underprice their firms’ IPOs” using a sample of U.S. IPOs. They found that the determinants of initial returns, institutional shareholdings, and post-IPO likelihood of acquisition were not consistent with these arguments. They concluded that monitoring considerations are not important determinants of IPO underpricing.

Francois Derrien (2005) explored the impact of investor sentiment on IPO pricing. Using a model in which the aftermarket price of IPO shares depends on the information about the intrinsic value of the company and investor sentiment, it was found that the IPOs can be overpriced and still exhibit positive initial return. A sample of French offerings with a fraction of the shares reserved for individual investors supported the predictions of the model. Individual investors’ demand was found to be positively related with market conditions. Moreover, large individual investors’ demand leads to high IPO prices, large initial returns, and poor long-run performance.

Mohammed Omran (2005) noticed the underpricing for 53 share issue in Egypt between 1994 and 1998. Over several intervals (up to five years), share issue privatizations sustain their positive performance and provide investors with positive abnormal returns over a one-year period; however negative abnormal returns were noticed over three- and five-year horizons. The initial excess returns were determined by ex ante uncertainty and oversubscription, whereas the aftermarket abnormal returns over a one-year period are driven by ex ante uncertainty and the price-earnings
ratio. However over three and five-year periods, abnormal returns are significantly affected by initial excess returns, the price-earnings ratio, and, to a lesser extent, oversubscription. These empirical findings were consistent with IPO markets in which investors are overoptimistic about the performance of these issues but grow more pessimistic over time.

Marisetty and Subrahmanyam (2005) documented the effect of group affiliation on the 2713 IPOs made in India during three regulatory regimes during the period 1990-2004. The study found that, the average under pricing of group companies was higher than that of standalone companies. In particular, they reported that under pricing was higher for companies affiliated to private foreign (multinational) and private Indian groups.

Pandey (2005) examined the difference in under pricing of IPOs caused by difference in allocation mechanism. On a sample of 84 Indian IPOs (20 book-build and 64 fixed price from the period 1999-2000, he found the initial returns were higher on fixed offer pricing. It may be noted that fixed price method was used for allocating of IPOs until 1999 when book building was allowed. Now both book building and fixed offer price method are available. This provides opportunity to compare both mechanisms under similar market conditions.

Ghosh (2005) carried out a study to find out the factors explaining IPO under pricing using 1842 companies that got listed on Bombay Stock Exchange from 1993-2001. His study supported the signaling theory. Contrary to the international experience, he reported that under pricing was less during the high volume (hot) period as compared to the slump period in the Indian stock market.

Alexander Ljungqvist and William J. Wilhelm, JR. (2005) derived a behavioral measure of the IPO decision-maker’s satisfaction with the underwriter’s performance based on Loughran and Ritter (2002) and assess its ability to explain the decision-maker’s choice among underwriters in subsequent securities offerings. Controlling for other known factors, it was found that the IPO firms were less likely to switch underwriters when behavioral measure indicated they were satisfied with the IPO underwriter’s performance. Underwriters also extracted higher fees for subsequent transactions involving satisfied decision-makers. Although the results suggested that the behavioral model has explanatory power, they do not speak directly to whether
deviations from expected utility maximization determine patterns in IPO initial returns.

Ravi Lonkani and Michael Firth (2005) studied IPO prospectus in Thailand and found that this type of direct disclosure is especially important in a developing economy such as Thailand where financial intermediaries and information vendors are relatively sparse, and where investors are rarely professionals. It was also found that the managers' earnings forecasts were much more accurate than extrapolations of historical earnings. The forecast accuracy is related to underpricing, and it has a directional, but not statistical, association with one-year stock returns and one-year wealth relatives.

Ya-Fang Wang et al (2005) examined whether a regulation on mandatory disclosure of financial forecasts since June 1991 and further sanction imposition since March 1998 contribute to lower IPO firms’ initial and aftermarket returns, and shorten honeymoon periods. The study was based on 423 IPO firms after the regulation required them to disclose their forecasts and 53 IPO firms prior to the regulation. The findings reported that initial and aftermarket returns are lower, and honeymoon periods are shorter in the post-regulation period than those in the pre-regulation. The findings also reported that initial and aftermarket returns are relatively smaller, and the honeymoon periods are shorter after the March 1998 regulatory sanction was imposed after controlling other variables. These results documented that the financial forecasts disclosure regulation evidently contributes to mitigating information asymmetry.

Ansari V. Ahmed (2006) studied the IPO underpricing in India during the period of 2005 and found that the average first-day return (underpricing) was 40.9 percent which is quite substantial. He also found that during the period 84 percent of the IPOs were underpriced and 16 percent were overpriced.

Paula Hill (2006) employed unique data relating to shareholdings of firms listing on the London Stock Exchange, and provides compelling evidence that IPO underpricing does not arise from efforts to determine the ownership structure of the post IPO firm. It is suggested that research is directed elsewhere to find an answer to the underpricing phenomenon, and for means other than IPO underpricing to affect post IPO ownership structure.
Dev Prasad, George S. Vozikis, and Mohamed Ariff (2006) examined the impact of government initial public offering (IPO) regulation intending on promoting public policy. The study examines the results of the implementation of a Malaysian government policy in 1976, which mandated that at least 30 percent of any new shares on an IPO offer be sold to the indigenous Bumiputera population or to mutual funds owned by them. The study examined the short-run and long-run underpricing of Malaysian IPOs and found that Malaysian IPOs are highly underpriced compared to IPOs in developing countries, creating a market microstructure effect. It also confirmed that the Malaysian government’s regulatory intervention in spite of noble public policy intentions appeared to be the significant factor for the emergence of an average first day underpricing increase of Malaysian IPOs by 61 percent during the period after the regulatory economic policy was instituted. Furthermore, the study found that this high underpricing persists even for the long run, in contrast to the long-run performance of IPOs in the United States.

Steven D. Dolvin and Mark K. Pyles (2007) conducted an empirical analysis on IPO data collected over the period 1986-2000. Specifically, they examined potential pricing differences between IPO that went public during the fall and winter months, relative to other issues. It was found that IPOs experience higher levels of underpricing in both the fall and winter months and that offer price revisions are higher during the winter months. Both of these results are consistent with seasonal affective disorder (SAD) influencing the IPO pricing process. The results suggested that behavioral issues (i.e. the emotions of buyers) may had as much of an effect on the pricing of IPOs as more traditional characteristics. Further, the results implied that firms with flexible issuance schedules should avoid going public during months affected by SAD, thereby potentially reducing the cost of issuance.

Stefano Paleari and Silvio Vismara (2007) tested the presence of over-optimism when pricing IPOs on the Italian Nuovo Mercato. This paper investigated whether the analysts made systematic errors when forecasting the performance of the firm undergoing the IPO by comparing analysts’ exante expectations to actual ex-post figures. Using a sample of pre-IPO analysts’ reports, the paper performed a regression analysis using the forecast errors (FE) of post-issue sales as dependent variable in order to find out the determinants of mis-valuation. They found that the Nuovo Mercato had been essentially a “market for projects” in which young enterprises...
endowed with a few tangible assets sold their business plans to the market exploiting high-growth opportunities. In the aftermarket, stock and operating performances are found to be declining, falling short of initial expectations. The extent of the actual post-issue growth was lower than the ex-ante estimations by financial analysts, whose valuations were systematically upwardly biased. Affiliated analysts were found not to be more over-optimistic than the unaffiliated. FE appear to be primarily driven by the extent of forecasted growth, by market sentiment and (inversely) by the size of the firm. From the perspective of investors, this study contributes to the understanding of the helpfulness and limits of the analysts’ forecasts in investment decisions and, more generally, of the determinants of over-optimism. This study addressed the issue of over-optimism and provides empirical evidence of it and also contributed to the literature on the rise and fall of the new European stock markets.

Shelly and Balwinder Singh (2008) explored prospective signaling variables, which might have resulted in oversubscription for IPOs. Based on the data comprising 1,963 offerings listed on Bombay Stock Exchange (BSE), they found that oversubscription had a positive and significant influence on underpricing in Indian IPOs as well. The certification to issues provided by underpricing, reputation of lead manager, and age of the company stimulate demand for issues resulting in oversubscription for Indian IPO issues.

Garg et al. (2008) examined whether underpricing exists in the Indian stock markets and what is the effect of various factors—such as bullish and bearish market, or hot and cold periods—on the level of underpricing. The conclusions drawn were: (a) there exists a significant level of underpricing in the short-run; (b) the IPOs were usually overpriced over long-period; (c) the opening price returns does not differ significantly from the closing price returns; (d) the level of underpricing does not differ much in the hot and cold IPO markets; and (e) the abnormal returns from the IPO underpricing differ significantly in the bearish and the bullish phases of the market.

Michael Firth et al (2008) explored IPO valuations in an emerging market where reliable comparable price multiples may not be readily available, or cannot be reliably identified. In particular, they examined the value relevance of price-earnings multiples disclosed by managers in IPO prospectuses in China. Using a sample of IPOs from
1992 to 2002, they found that price-earnings multiples disclosed by IPO firms provide significant power in explaining price formation in this emerging market. They also found that price-earnings multiples disclosed by IPO firms after 1999, when the China Securities and Regulatory Commission relaxed its internal guideline for approving IPO applications, are more informative. The results are robust to a variety of empirical model specifications. This study contributes to the existing IPO literature by showing that the disclosure of price-earnings multiples provides a mechanism for IPO firms to convey information about IPO firm quality when reliable comparable firm multiples may not exist.

Yan Xiong et al. (2008) tested the market performance of a zero investment trading strategy based on the knowledge of IPO underperformance and estimates of pre-IPO earnings management. This trading strategy was implemented by forming two-firm portfolios that take short positions in the IPOs and long positions in control firms matched by industry and market capitalization. The first test shows that significant positive abnormal returns can be earned trading on the knowledge of IPO underperformance. However, the relationship between the level of abnormal returns and the level of pre-IPO earnings management was not found to be significant. The results suggested that existent pre-IPO earnings management plays important roles although investors may not be sophisticated enough to measure the level of earnings management.

Anna P. I. Vonga and Duarte Trigueirosb (2009) examined earned returns and allocation details of more than 200 new offerings (Initial Public Offering, IPO) from companies that went public in Hong Kong during the period 1988 to 1995. Three distinct groups of investors were identified, each exhibiting a particular type of return’s pattern. Each pattern seems to correspond to a specific level of information. This finding is of particular interest as it showed the level of return that an investor can expect from IPO investments, also being an extension of previous studies where, following Rock (1986), two, not three, groups of investors are identified. This article also found that expected returns from IPOs remain positive and highly significant after adjusting for the allocation bias. With the exception of the smallest application sizes, results are invariant to adjustments such as transaction costs and the risk-free rate of return.
Guntur Anjana Raju and Rudresh R. Kunde (2009) found that a public company issuing IPOs have seen dramatic listing gains on their first day of trading. Of the 110 IPOs floated between January 2006 and April 2007, 104 recorded listing gains. In 70 of them, the listing day gain exceeded 20 percent of the issue price. IPOs had given good returns for the short term as well as the long term and could be considered to be a good investment avenue for wealth creation. In the year 2007, as well, taking advantage of the strength in the secondary market, many high profile companies lined up to raise money from the market. The average returns provided on listing during the period January 2005 to March 31, 2007, was 33 percent, with these returns being realized immediately, within approximately 40 days of the issue being floated. These attractive returns coupled with the short returns realization period are making IPOs a rewarding investment option.

P. Ishwara (2009) analyzed 107 companies which entered capital market through IPOs in the financial year 2007-08 and found that the private companies are dominated in the new issues. Out of 107 issues, 86 companies gained in listing their shares in BSE and NSE and rest of the companies reported negative return to the investors. As far as the listing gains are concerned individual stock like Global Broad Caste News Ltd gained above 88.0 per cent return in the financial 2007-08. At the same time some stocks listed below offer price and incurred nearly 19.0 per cent loss for example Orbit Corporation. During the peak market (Bullish) conditions i.e. when BSE SENSEX Indices 20,728 and NSE 6206.80 on 15th January 2008, out of 107 companies, most of the companies i.e. 80 companies share are traded for high prices and reported handful return to the investors. In the peak market, many individual stocks like Orbit Corporation, Evernon Systems Ltd, MIC Electronics gave high rate of returns to the investors. In the bearish trend (declining) when BSE SENSEX 16,783.87 and NSE 5049 on 22nd April 2008, some of the individual stocks like Evernon System India Ltd gave 380.71 per cent returns and maximum loss incurred companies like House and pearl fashions Ltd (i.e. -70.44 percent). The study showed that, Market forces and Individual companies’ performance reflect stock performance.

Soumya Guha Deb (2009) examined the underpricing in Indian IPOs during the period from 2001 to 2009. Using a sample of 187 IPOs, the results indicated evidence of underpricing on the average in Indian IPOs during this period. It is also observed that the mispricing adjusts very quickly and no excess returns are available to
investors in the aftermarket in the short run which is consistent with the notion of efficient market hypothesis. A strong positive relationship was found between underpricing and ex-ante as well as ex-post measures of uncertainty. The level of activity in the issues measured by the daily trading volume is also found to have strong correlation with underpricing.

Alok Pande and R Vaidyanathan (2009) looked at the pricing of IPOs in the NSE, in particular, it sought to empirically explain the first day underpricing in terms of the demand generated during the book building of an issue, the listing delay between the closure of the book building and the first day listing of the issue, and the money spent on the marketing of the IPOs by the firms. It also sought to understand any emerging pattern in Indian IPO market with reference to the previous studies. Moreover, it sought to find the Post-IPO returns for one month in the NSE. The results suggests that the demand generated for an issue during book building and the listing delay positively impact the first day underpricing, whereas the effect of money spent on the marketing of the IPO is insignificant. It was also found that in consonance with the extant literature, the Post-IPO performance in one month after the listing for the firms under study is negative.

G Sabarínathan (2010) found some interesting changes in the characteristics of the companies that made IPOs during the period 1993-94 to 2008-09. The changes in characteristics are in terms of the size of the issue, size of the issuer as measured by the post issue paid capital, the stage of evolution of the issuer, the pricing of the issue, fraction of shareholding of the issuer that has been offered for public ownership, the industry/business that the issuer is engaged in and the exchanges on which the shares were listed. Over the years the market has been receiving fewer issues, but of increasing size from larger firms with an established track record. Issuers seem to be offering a smaller fraction for public ownership at the IPO and have been listing on fewer exchanges. Fewer issues were priced at par during the later part of the period of analysis than the initial years. The sector-wise analysis of issuances points to fundamental changes in the Indian industrial economy such as the emergence of new sectors such as media, banking and information technology. The listing pattern across SEs pointed to significant changes in the marketplace for securities trading and suggests a strong preference for large national SEs.
Seshadev Sahoo and Prabina Rajib (2010) evaluated the price performance of IPOs with respect to short-run underpricing and long-run underperformance for 92 Indian IPOs issued during the period 2002-2006 up to a period of 36 months including the listing day. The result indicated that on an average the Indian IPOs are underpriced to the tune of 46.55 per cent on the listing day (listing day return vis-à-vis issue price) compared to the market index. The long-run performance of IPOs up to a period of 36 months measured by using the two most promising evaluation techniques, i.e., wealth relative (WR) and buy-and-hold abnormal rate of return (BHAR), both being adjusted with market index, CNX-Nifty. Further, it was found that the underperformance is most pronounced during the initial year of trading, i.e., up to 12 months from the listing date followed by over-performance. To get possible explanations for long-run underperformance for Indian IPOs, factors like underpricing rate (listing day return), offer size, leverage at IPO date, ex-ante uncertainty, timing of issue, age of IPO firm, rate of subscription, promoter groups retention, and price-to-book value (as proxy for growth) were considered. Evidence found, that initial day return, offer size, leverage at IPO date, ex-ante uncertainty, and timing of issue are statistically significant in influencing underperformance. However, there was no evidence favorable to the age of the IPO firm, rate of subscription, promoter group’s retention, and price-to-book value impact on the long-run underperformance. The empirical results suggest that the investors who invest in IPOs through direct subscription earn a positive market-adjusted return throughout the period of study. But investors who bought shares on the IPO listing day earned negative returns up to 12 months from the listing date and expect to earn positive market-adjusted return thereafter.

Carter and Manaster (1990) found that prestigious underwriters associated with IPO’s have lower returns. Carter, Dark and Singh (1998) found that underperformance of IPO stocks relative to the market over a three-year holding period were less severe for IPOs handled by more prestigious underwriters. They also found that the IPOs managed by more reputable underwriters are associated with less short-run underpricing. Megginson and Weiss (1991) demonstrated that presence of VCs in IPOs resulted in significantly lower initial returns and lower total costs of going public. Booth and Smith (1986) develop a theory of the role of the underwriter in certifying that risky issue prices reflect potentially adverse inside information. While postulating the certification hypothesis they said that the underwriter with a
reputation to protect can “certify” whether the issue price of the new security to be issued better reflects the available inside information. In the absence of such a certification, due to the potential information asymmetry between insiders having private information and the outsiders who may be over-estimating cash flows, can result in market failure as identified by Akerlof (1970).

There are three tests to determine whether the certification is believable (Megginson and Weiss, 1991). First the certifying agent should have reputation at stake, second this stake should be greater than one time side payment which can be made to certify falsely and above all it should be costly for the issuer to purchase the services of the certifying agent. The cost of the certifying agent is therefore an increasing function of the importance that the issuing firm places to the resolution of information asymmetry.

Certification in IPOs has been studied primarily for underwriters (Carter, Dark and Singh, 1998) and Venture Capitalists (Megginson and Weiss, 1991). Carter, Dark and Singh (1998) found that reputable underwriters lead to lower underpricing. Prior to this, Carter and Manaster (1990) found that firms with lower risk select an underwriter with high reputation to signal their quality, with underwriters reputation signalled by their position in “tombstone” advertisements. Barry et al (1990) obtain a negative correlation between Venture capitalists (VCs) ownership in a firm, the time spent by them in the boards of firms and the number of VCs investing in a firm with the first day returns. This lead them to conclude that VCs provided a good monitoring role in the firms in which they invest. While Megginson and Weiss (1991) found that the presence of VCs reduces underpricing, Lee and Wahal (2004) examined the role of venture capital backing in the underpricing of IPOs demonstrated that the presence of Venture Capitalists actually increases underpricing because of the endogeneity involved. Larger underpricing in a particular industry increases subsequent VC funding in that industry and also increases the reputation of the VC concerned in the market. Cross-sectionally, the effect of underpricing was attenuated for younger venture capital firms and those that have previously conducted fewer IPOs.

An analogy to the certification role of external agencies is that of the role of credit rating agencies. A credit rating agency gives its opinion on the credit risk involved in investing in a firm or a security. In the recent global meltdown, the role of such agencies has come under scanner. Even earlier, the credit rating agencies continued to rank Enron as a good credit risk company till 4 days before the company declared bankruptcy (Securities and Exchange Commission, 2003).

To summarize, so far, international evidence recognizes that asymmetric information among issuers and investors is the prime factor explaining IPO underpricing. Some studies argued that promoters use underpricing to signal their better quality and, subsequently, raise large amounts of funds from the market. Rooted as they are in theory, many of these explanations are likely to be true for emerging economies as well as developed ones. However, there could be institutional features specific to developing countries, such as underdeveloped capital markets, the existence of business groups, and IPO regulations, especially regarding small and young firms, that might impinge on both the causes and the extent of underpricing in emerging countries. In India, the earlier research efforts on IPOs were mainly focused on to study their initial returns and on their underpricing.

In this research study the efforts will be done to investigate the patterns of the short term (listing day) returns and long term (post listing) returns with respect to Indian stock market using event study approach. The other exogenous variables such as subscription, age, issue size, promoters holding etc will be considered to understand the behavior of IPOs in short and long term. The IPOs came in Indian stock market will be divided with respect to different feature of the companies such as age, issue size, industry and IPO grading etc. The world renowned anomalies of underpricing in short term and underperformance in long run will also be tested in Indian context.

### 2.2. Research Methodology

This section sketches the research design, data collection method, the sampling procedure, the variables used, hypothesis tested, Statistical tools and the software used for the analysis.
2.2.1 Rational of The study

IPOs refer to the initial sale of shares by a company to the public investors with the purpose to raise finance for the corporation. After the issue they are listed on the stock exchange for further trading of the company’s security in the secondary market. In present scenario the IPOs are heavily regulated by a number of regulatory bodies, such as SEBI, Stock Exchanges (Listing agreement), Fema guidelines (RBI), and Companies Act, 1956. IPO market is witnessing magnificent growth in recent times which is a manifestation of a growing economy. The advancement in information technology is a major contributor of growth in Primary market. A large number of oversubscribed IPOs indicate the confidence of the investors in the market. Also the recent IPO scam of individual investors placing multiple bids in IPO auctions is the evidence of the craze of investors for the primary market. The recent concept of IPO grading by a credit rating agency is supposed to enhance the investor’s confidence in the primary market. The primary market is not only provides the opportunity for investors to earn good returns but also becomes a preferred route for a lot of companies. The purpose is not only to raise funds for the company but also to acquire and enhance the public image and to get exposed to the global market as global presence, global brands and global markets is the success mantra for the success of the company.

The most important phenomenon in the primary market is the concept of valuation of IPOs. The true valuation is necessary for the trust, faith and confidence of the investors in the primary market. There is a need to study the past performance of IPOs and about the various factors which may affect their returns in the secondary market. Existing literature has shown that there is a tremendous information gap between the issuers and investors, which is the main factor for mispricing of IPOs. A better explanation supported by the empirical research can be really helpful in eliminating the information disparity between the issuers and investors, and increases the trust and confidence of both the players in the primary market, which ultimately is necessary for the good health of the economy as a whole. The economy as a whole will grow in true sense if the business matures and when the wealth created by entrepreneurs is shared with the investors. Hence a detailed and microscopic analysis of primary market in Indian stock market is desired.
2.2.2 Statement of the Problem/ Description of the problem

To analyze the initial returns provided by Initial Public Offerings (IPO’s) over and above the benchmark index S & P CNX Nifty after the issue on the listing day as well as in the following years using event study methodology and to identify the different factors that can explains the return behavior of Initial Public Offerings in Indian Stock Market.

2.3 Objectives of the study

The primary objective of the study is to analyze the initial returns provided by Initial Public Offerings (IPO’s) over and above the benchmark index S & P CNX Nifty after the issue on the listing day as well as the performance of IPO’s in terms of the long term returns up to the period of six months after the listing of the issue using event study methodology and to identify the different factors (ownership structure, age of the company, market demand (subscription), industry type, promoter’s group, issue size, bullish/bearish period) that explains the return behavior of Initial Public Offerings in different time periods of the emerging Indian economy.

The sub-objectives of the study include to study the inter-relationships between different variables such as initial returns of IPOs, market return, Promoter’s holding, subscription, issue size, age etc. influencing the performance of the IPOs.

2.4 Research Design

A Research Design is the specification of methods & procedures for acquiring the information needed to structure or to solve problems. It is a series of advanced decisions that taken together form specific master plan for the conduct of the investigation. This research study is descriptive in nature and an effort is made to analyze the relationship between the factors related to IPO listing and long term returns and other exogenous factors associated with the IPOs.

2.4.1 Sampling

The study includes all the companies which offer public issue as the Initial Public Offerings (IPOs) during the period Jan 2000 up to Dec 2010 through National stock exchange (NSE).
2.4.2 Description of the Variables

The research study includes the following variables:

1. **Issue price**: The price at which a company’s shares are offered to the market for the first time, which might be at par or at a premium or discount. In case of Book building issue, the issue price is decided by the registrar after receiving all the applications for the shares. When they begin to be traded, the market price may be above or below the issue price.

2. **List price**: After closing of the issue the IPO lists on the stock exchange. The Market price after the listing on the stock exchange is known as the list price of the issue. The list price reflects the market expectations associated with the company performance in the future.

3. **Age**: The difference of the time in years from the year of incorporation of the company and the year when the company came with the IPO in the market.

4. **Subscription**: An IPO subscription is an offer to a buyer to purchase soon-to-be-issued stocks. The subscription is expressed in terms to the times, by which the issue is subscribed. The subscription represents the demand of the IPO among the investors in the market.

5. **Issue Size**: Issue size is the amount which a company wants to raise by offering equity shares to the public.

6. **Listing Day Return**: This is the return earned by the investor by selling the allotted shares on the listing day.

7. **Long terms return**: In case the investor holds the allotted shares for longer period and sells them thereafter then the returns earned are considered as long term returns. There long term returns should also be adjusted with the market return in order to analyze the performance of individual IPOs.

8. **Market (Benchmark Index) Return**: The Nifty index is considered as the benchmark index for the study.

9. **IPO Grading**: IPO Grading is provided by SEBI approved rating agencies including CRISIL, CARE and ICRA. IPO Grading is designed to provide
investors an independent, reliable and consistent assessment of the fundamentals of IPO Issuer Companies. As IPO Grading is decided much earlier than the issue price or issue dates are finalize (usually on the IPO filing) and they just tell about the fundamentals of the company.

10. **Promoters’ holding after the Issue:** This variable represents percentage of shares held by the promoters after the issue.

11. **Dummy variables** for bearish and Bullish period.

12. **Market Adjusted Return:** The returns of the IPO over and above the market returns for the same period (From last day of the closing up to the listing day when IPO got listed on the stock exchange) is the market adjusted return.

13. **Long Term Performance:** The returns provided by the IPOs in one, two and three years after the listing over and above the market returns for the same period represents the long run performance of the IPO.

14. **Returns on Application Money:** Due to oversubscription in IPOs, number of shares allotted to investors is less than the no of shares for which the investor has applied. So, It is important to know the average return on the application money \( (R_a) \) by applying the following method:

\[
R_a = \frac{\sum_{i=1}^{n} RL_i}{S_i} \times \frac{1}{n}
\]

Where, \( R_a \) = Average return on the application Money  
\( RL_i \) = Return on listing day for \( i^{th} \) issue  
\( S_i \) = Subscription for \( i^{th} \) Issue

2.4.3 Data Collection

This study is based on the data of 342 Initial Public Offerings (IPOs) which were offered between Jan 2000 and Dec 2010 and got listed on National Stock Exchange. The data is secondary in nature. The data of these 342 IPOs is collected from CMIE database PROWESS and the official website of National stock exchange (www.nseindia.com). The website of www.chittorgah.com (Indian IPO investment
portal) is used to get details of IPOs. The daily data of market index i.e. S & P CNX Nifty is collected from NSE website.

2.5 Statistical tools used:

2.5.1 Listing Day Returns

The return on the listing day \( (R_i) \) is calculated by using the formula:

\[
R_i = \frac{(P_1 - P_0)}{P_0} \times 100
\]

where, \( P_1 \) = Price of share on the listing day and in the same date of following months

\( P_0 \) = Issue price

2.5.2 Event Study Approach

An Event study is a statistical method to assess the impact of an event on the value of a firm. Event studies have been used to examine the direction, magnitude, and speed of security price reactions to various phenomenons. For example, the announcement of a merger between two business entities can be analyzed to see whether investors believe the merger will create or destroy value. The basic idea is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the price fluctuation of the market as a whole.

In this research study, the econometric technique Event study approach is used to calculate the abnormal returns provided by the IPOs on the listing day. Mathematically the abnormal returns can be calculated by subtracting the market return from the return provided by the Initial Public Offer (IPO) and can be expressed as:

\[
AB_i = \frac{(P_1 - P_0)}{P_0} \times 100 - \frac{(M_1 - M_0)}{M_0} \times 100
\]

Where, \( AB_i \) = Abnormal return provided by the IPO over the market.

\( P_1 \) = Closing Price of the IPO on the listing day

\( P_0 \) = Issue price of IPO
M₁ = Closing index value on the listing day

M₀ = Closing index value on last day of the period when the issue was open.

The Cumulative abnormal return (\( \text{CAR}_i \)) can be calculated by the following formula:

\[
\text{CAR} = \sum_{i=1}^{n} AB_i
\]

Where, \( \text{CAR} \) is the cumulative abnormal return calculated by adding all the abnormal returns of the IPOs on the listing day.

The Cumulative average abnormal return (\( \text{CAAR} \)) can be calculated by dividing the \( \text{CAR} \) by the number of IPOs.

\[
\text{CAAR} = \frac{\text{CAR}}{n}
\]

Where, \( n \) is the total number of the IPOs issued during the period considered for the study.

2.5.3 Multiple Regression Model

Multiple regression model is used to identify the determinants of listing and long term performance of IPOs. Multiple regression is a method of data analysis that may be appropriate whenever a quantitative variable (the dependent variable) is to be examined in relationship to any other factors (expressed as independent variables). Relationships may be nonlinear, independent variables may be quantitative or qualitative, and one can examine the effects of a single variable or multiple variables with or without the effects of other variables taken into account.

Many practical questions involve the relationship between a dependent variable of interest (\( Y \)) and a set of \( k \) independent variables (call them \( X_1, X_2, X_3, \ldots, X_k \)) where the scores on all variables are measured for \( N \) cases. A multiple regression equation for predicting \( Y \) can be expressed as follows:
\[ Y' = A + B_1X_1 + B_2X_2 + B_3X_3 \]

For a given set of data, the values for A and the \( B_j \)s are determined mathematically to minimize the sum of squared deviations between predicted \( Y' \) and the actual Y scores. Calculations are quite complex, and best performed with the help of a computer, although simple cases with only one or two predictors can be solved by hand with special formulas.

The correlation between \( Y' \) and the actual Y value is also called the multiple correlation coefficient, \( R_{y.12...k} \), or simply R. Thus, R provides a measure of how well Y can be predicted from the set of X scores. The following formula can be used to test the null hypothesis that in the population there is no linear relationship between Y and prediction based on the set of k X variables from N cases:

For the statistical test to be accurate, a set of assumptions must be satisfied. The key assumptions are that cases are sampled randomly and independently from the population, and that the deviations of Y values from the predicted Y values are normally distributed with equal variance for all predicted values of Y.

Alternatively, the independent variables can be expressed in terms of standardized scores where \( Z_1 \) is the z score of variable \( X_1 \), etc. The regression equation then simplifies to:

\[ Z_{Y'} = \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 Z_3 . \]

The value of the multiple correlation R and the test for statistical significance of R are the same for standardized and raw score formulations.

**Multiple Correlation with Two Predictors**

The strength of prediction from a multiple regression equation is nicely measured by the square of the multiple correlation coefficient, \( R^2 \).

**Adjusted R Squared**

Multiple R squared is the proportion of Y variance that can be explained by the linear model using X variables in the sample data, but it overestimates that proportion in the population. This is because the regression equation is calculated to produce the
maximum possible R for the observed data. Any variable that happens to be correlated with Y in the sample data will be given optimal weight in the sample regression equation. This capitalization on chance is especially serious when many predictor variables are used with a relatively small sample. An estimate of the proportion of Y variance that can be accounted for by the X variables in the population is called “shrunken R squared” or “adjusted R squared.” It can be calculated with the following formula:

\[
Adjusted \quad R^2 = \hat{R}^2 = 1 - (1 - R^2) \frac{N - I}{N - k - I}
\]

2.5.4 Independent sample T test

The t-test is the most commonly used method to evaluate the differences in means between two independent groups. Theoretically, the t-test can be used even if the sample sizes are very small, as long as the variables are normally distributed within each group and the variation of scores in the two groups is not reliably different. The normality assumption can be evaluated by looking at the distribution of the data (via histograms) or by performing a normality test. The equality of variances assumption can be verified with the F test, or with the more robust Levene's test. The p-level reported with a t-test represents the probability of error involved in accepting the research hypothesis about the existence of a difference. Technically speaking, this is the probability of error associated with rejecting the hypothesis of no difference between the two categories of observations (corresponding to the groups) in the population when, in fact, the hypothesis is true.

2.6. Hypothesis to be tested:

The Hypothesis tested in the research study is as follows:

**Ho1:** There is no significant difference between the long term post listing IPO returns (up to the period of six months and one year) and the market (S & P CNX Nifty) returns.

**Ho2:** There is no significant relation between the initial returns of the IPO on the listing day and the micro issues (ownership structure, age, subscription, market capitalization and issue size) of the company.
**Ho3:** There is no significant difference between the listing and post listing returns of the IPOs (up to the period of one year) and the returns of another company that belongs to the same industry which is closest in terms of capitalization.

**Ho4:** There is no significant relation between the IPO returns on the listing day and the long term post listing returns up to the period of one year.

**Ho5:** There is no difference between the Book building and fixed price issue in terms of initial returns made by IPO on the listing day.

### 2.7. Software Used

The data analysis is done using the software MS Excel and SPSS (Statistical Package for Social Science).
References


