Chapter 8

Major Findings and Concluding Remarks
8.1 INTRODUCTION
The transition from being a private company to a public one is one of the most important decisions to be taken by the management in the life of a firm. It is also of particular interest for all class of investors, including institutional investors, qualified institutional borrowers (QIBs) and retail investors and the transition is facilitated through initial public offerings (IPOs) process. The IPOs provide a fresh source of capital that is critical to the growth of a company and provides the founder/promoters and other shareholders, a liquid market for their share. From an investor’s perspective, IPOs provide an opportunity to share in the rewards of the growth of firm. It is, therefore, important that the quality of the IPOs market in terms of its efficiency, enhanced transparency, price discovery process, etc. is brought at par with the international standards so as to inculcate a fair degree of confidence among the investors in the market.

In most cases, the desire to raise equity capital for the firm and to create a public market in which the founders and other shareholders can convert some of their wealth into cash at a future date is the overriding consideration for a firm becoming ‘public’ via the IPOs route. Non-financial reasons, such as, increased publicity play only a minor role for most firms. In the absence of cash considerations, most entrepreneurs would rather just run their firms than concern themselves with the complex public market process associated with raising of funds from the market. This still leaves the question as to why IPOs are the best way for entrepreneurs to raise capital, and why the motivation to do IPOs is stronger in some situations or times (boom or hot market period) than in others. It is observed that the volume of IPOs varies directly with trends in share prices in each country. When share prices rise in all countries, the volume of IPOs also rises.
In 1980s and 1990s, there was an increasing realization on the part of the policy planners in India that an efficient and well developed capital market is essential for sustained growth in an emerging market economy like India. The capital market fosters economic growth by promoting channelisation of real savings for capital formation and raises productivity of investment by improving allocation of investable funds. However, it is quality of the market which determines effectiveness of this mechanism for capital flow. Accordingly, with the view to improve the quality of the market in terms of market efficiency, transparency, price discovery process, preventive unfair trade practices etc. and brining the Indian capital market up to the international standards, a package of reforms comprising of measures to liberalise, regulate and developed the Indian capital market are being implemented since early 1990s.

The reforms undertaken, was an attempt to broadly cover legislative framework, trading mechanisms, institutional support, etc. Some of the major milestones in the history of capital markets reforms in India, inter-alia, included repeal of Capital Issues (Control) Act, 1947, establishment of securities market regulator i.e. Securities and Exchange Board of India (SEBI), introducing Disclosure & Investor Protection (DIP) guidelines moving the market from merit based to disclosure based regulation, Screen based Trading, etc. Efforts were also made for effectively managing market risk through steps like introduction of T+2 settlement cycle, dematerialisation of shares, enactment of Depositories Act, 1996, amendment to the Securities Contracts (Regulation) Act to expand the definition of “securities” to include derivatives and to provide legal framework for trading of securitised debt, setting up of Clearing Corporations for assuming counter-party risk, setting up of Trade and Settlement Guarantee Funds, etc. Specific policy measures taken by the Government for the IPO segment of the primary market, inter alia, included introduction of Fixed price/ Book building method for pricing of IPOs, prescribing certain eligibility norms for companies issuing IPOs, introduction of grading of IPOs to help retail investors assessing the
fundamentals of the company, specific allocation of quota for mutual funds, introduction of uniform margin payments for all categories of investors, introduction of concept of Anchor investors, etc.

Coupled with a strong macro-economic fundamentals, sustained growth, active institutional support, sound business outlook, etc. the above policy initiatives encouraged large number of companies to raise funds from the IPO segment of the primary market. In terms of number of issues and amount raised, it was observed that the Indian market exhibited a steady rise up to 2007-08. Thereafter, the market started declining on account of global economic crises. The effect of global economic prices was reflected in terms of decline in the IPO activities during 2008-09 and 2009-10. Then, there was a recovery period of one year when the number of IPO issues as well as the amount went up during 2010-11. Thereafter, the subdued IPO market of 2011-12 could be regarded as the fall-out of impact of Euro Zone crises on the India growth. However, keeping in view the requirements of Indian corporates and the available sources of funding through the public issue route, the rising trend in the IPO market is going to continue except for the temporary phases of cyclical downturn due to domestic and international factors.

With a strong market fundamentals and a good prospect for growth, a transparent and efficient IPO market with a well-defined price discovery process in place will go a long way in leveraging India’s potential as a preferred destination for both domestic and global investors. Accordingly, from a long term perspective of making the Indian capital market sustainable, it is important that the behaviour of the market and its participants is constantly observed and appropriate regulatory measures are put in place to protect the integrity of the market and the interests of the investors. But more importantly, we also need to constantly innovate new market products and better price discovery process, if the policy makers really want to sustain the momentum of the Indian capital market without compromising the integrity & transparency of the market.
Underpricing of IPOs

Coming to the nature of IPOs market, one of the issues which got the maximum attention in international financial literature over the last two decades relates to underpricing of IPOs. It was perhaps one of the most widely researched and debated topic in the area of financial economics with the general consensus that on an average, IPOs are priced lower than their first day closing price. The best-known pattern associated with the process of going public was the frequent incidence of large initial returns (the price change measured from the offering price to the market price on the first trading day often also referred to as underpricing) accruing to investors in IPOs of common stock. The available IPO literature indicated that there are positive abnormal returns measured from either the opening or the closing price on the first day of trading versus the offer price on IPOs. The IPOs literature also documented that measuring the returns on IPOs over the years (Long-term), the new shares generally have no abnormal returns during the period after issuance, and the abnormal returns become negative over time. While there is a general consensus that IPOs have positive initial returns, the available literature shows different empirical findings about the long run after market performance.

Theoretical explanation for underpricing can be grouped under four broad categories: asymmetric information, institutional factors, control considerations, and behavioral approaches. Although, the asymmetric information model is regarded as the most established theoretical explanation for underpricing of IPOs, other explanations are equally important. The key parties to an IPO transaction are the issuing firm, the bank underwriting and marketing the deal, and investors. Asymmetric information model assumed that one of these parties knows more than the others. Baron (1982) assumed that the bank is better informed about demand conditions than the issuer, leading to a principal-agent problem in which underpricing is used to induce optimal selling effort. According to Rock (1986) hypothesis, some investors were better informed than others and so can avoid participating in overvalued
IPOs. The resulting *winner's curse* experienced by uninformed investors had to be countered by deliberate underpricing. Welch (1989) and others assumed that the issuer was better informed about its true value, leading to an equilibrium in which higher-valued firms use underpricing as a signal. Finally, Benveniste & Spindt (1989) assumed that underpricing compensates better-informed investors for truthfully revealing their information/choice before the issue price is finalized, thus reducing the expected amount of money left on the table. Institutional theories focused on three features of the marketplace: litigation, banks’ price stabilizing activities once trading starts, and taxes. Control theories argued that underpricing helps widen the shareholder base so as to reduce intervention by outside investors once the company is public. The behavioral theories, inter-alia, argued that an issuer may underprice an issue to encourage the first few potential investors to buy and subsequently induce a cascading effect resulting into all subsequent investors subscribing to the issue, irrespective of their own information.

As mentioned above, underpricing of IPOs is one of the most widely researched areas in the literature of finance. Past international studies on short-run underpricing of IPOs showed that these research mainly focused on variables/parameters which could broadly be classified under 4 categories, i.e., company/issue specific parameters, industry specific parameters, market specific information and country specific macro-economic parameters. Beatty & Ritter (1985) in his study, inter alia, postulated the hypothesis that greater is the ex-ante uncertainty, the higher was the expected underpricing. The authors have used (i) the log (1+no. of uses of proceeds) listed in the prospectus and (ii) 1/gross proceeds as the proxies for ex-ante uncertainties. The issues for which there is greater ex-ante uncertainty tend to have a greater number of the uses of proceeds listed. The inverse of the gross proceeds captures the empirical regularity that small offerings are more speculative. In the other words, both these variables are positively related to the degree of underpricing. According to Peter Karlis (2000) IT and middle
industries IPOs tend to be less priced leading to higher initial return. This was based on the hypothesis that industry with longer, more informative history will be less underpriced because there was less uncertainty about the issuing firm. Further, as the percentage of issued stock detained by the original owners and the insider of the company went up giving quality signal to the investors, the demand for stock should increase resulting into the initial first day gains and therefore the degree of underpricing. This was based on the general opinion in the finance industry hypothesis rather than from empirical study. According to this hypothesis, the firm would intentionally underprice their issued specifically for the attention gained by the first day run-up in the stock price. This gave the firm added publicity and media exposure while simultaneously proved the value of the firm for investors. This technique is referred to as “grandstanding an IPO” and it would be more frequently employed by smaller, less established firms only to draw investors' attention and whose value is considered very uncertain by potential investors. Kooli & Suret (2001) examined ex-ante uncertainty hypothesis, underwriter reputation hypothesis and market climate hypothesis in the context of the Canadian IPO market for the period between 1991-1998. According to this study a negative relationship existed between the level of underpricing vis-à-vis ex-ante uncertainty (proceeds of the issue used as a proxy for ex-ante uncertainty) and the reputation of the underwriter. Further, IPOs issued during an upswing in the stock market experienced a higher underpricing than IPOs issued during a falling market. Guner, Onder & Rhoades (2004) examined the relationship between reputation of an underwriter and the initial-day IPO return in the emerging market of Turkey during January, 1993 to June, 1999. The authors used two reputation measures: the first measures assumed that two underwriters with the highest number of IPOs lead or co-lead was the prestigious and the rest are not. This variable measured the visibility of underwriters in the IPO market. The second reputation variable is a proxy for the volumes of IPO business (either in dollar amount or in number) lead or co-lead by an underwriter. According to their model, a negative relationship between the initial day IPO returns and the visibility measures was found. This
indicated that since these underwriters were well known by the investors, they underpriced IPOs to a lesser degree. On the other hand, initial day IPO returns was found to be positively related to the volume of IPOs indicating that the more IPOs an underwriter handled, the harder would be to sell the shares. Therefore, these underwriters had to underprice the issues to a higher degree. In addition, this model also indicated that age of the company had a positive and statistically significant coefficient indicating that the older firms would be underpriced to a higher degree which was in conflict with international findings.

Venkatesh & Neupane (2004) used a unique set of IPOs data in Thailand post Asian Financial crises period to identify the relationship between initial market adjusted underpricing and the ownership concentration. Ownership concentration factor brought out some results which were inconsistent with the Signalling hypothesis (relationship of high ownership and high underpricing), but consistent with some other studies in the emerging market. High ownership concentration was not followed by high initial underpricing. In fact the reverse took place which indicated the offer price was already set high by the large shareholders of the company so as to drive away the kind of initial high returns. Chi & Padgette (2005, A) researched 340 and 40 IPOs issued during 1996 and 1997 respectively in China to analyse their short and long run performance. According to authors, the main cause of high initial underpricing was much larger demand than the number of shares offered. The same authors further studied (2005, B) the initial underpricing of 668 IPOs issued in Shanghai and Shenzhen between 1996 and 2000. The main explanation for the high initial return (298% for A shares and 25% for B shares) was much larger demand than the offer of the shares, in a proportion of 50: 1. The natural log of offer size was also negatively related to initial return, which was in line with the ex-ante uncertainty hypothesis, because larger IPOs were in general issued by large and old companies having longer historical data and better known to investors. High-tech dummy was related to
high initial underpricing, indicating that investors consider companies that operate in high-tech industries riskier and hence demand high returns.

**Procianoy & Cigerza (2006)** in his study on IPOs in Emerging Markets: A comparison of Brazil, India and China used multivariate linear regression model with a mix of variables covering IPO specific information, market related factors and macro-parameters, such as offer size, Investment bank reputation, final offer price, market performance, dummy for produce goods using high-tech content, interest rate, FDI, GDP, inflation, inflation. In this study, the authors found market performance (before and after the issue) and the high-tech dummy the only variables influencing short run initial return with acceptable statistical significance at 10% or below. **Bundoo (2007)**, inter-alia, used log value of gross proceeds and market capitalization as determinants of IPO in his analysis of IPOs underpricing in Mauritius. Both were used as indicators for the size of the company and found to be positively related to underpricing as companies with large size signaled their intrinsic value by underpricing by a higher margin. The independent variables used in the multivariate analysis of the first day trading performance of the IPOs in the Brazilian Market between January, 2004 to April, 2007 by **Faria (2007)** included age of the firm, ratio of primary offer size to the total offer size and nine key ratios: sales, growth in sales, solvency, liquidity, fixed asset turnover, total asset turnover, return on equity, return on assets and operation profit margin. The author observed that out of all the above independent variables, only return on equity was statistically significant with negative correlation with underpricing. While examining the determinants of initial IPO performance in Hong Kong and Taiwan, **Lin & Hsu (2008)**, inter alia, found that ‘allotment ratio’ of the subscribed shares (total IPO shares issued over the number of shares subscribed by the participants applicants) was the most consistent determinants for IPO underpricing in both the Hong Kong as well as Taiwanese market, thereby supporting Rock’s (1986) adverse selection theory of underpricing. However, the model found no relationship between IPO underpricing vis-à-vis IPO proceeds, ownership retention rate, underwriters’
reputation, institutional ownership and debt ratio thereby not supporting the ex-ante uncertainty hypothesis.

In the Indian context, Madhusoodanan & Thiripalraju (1997) analysed the Indian IPO market for the short term as well as long term underpricing. They also examined the impact of issue size on the extent of underpricing in these offerings and the performance of merchant banker in pricing these issues. The study indicated that, in general, the underpricing in the Indian IPOs in the short run was higher than the experiences of other countries. In the long run, Indian offerings gave 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. Krishnamurti & Kumar (2002) in their study analysed 386 IPOs issued between 1992 and 1994 in the Bombay Stock Exchange and documented time-lag as one of the important reasons for underpricing of IPOs in India as it increased the perceived risk of the investors and hence they demanded more return. They also suggested but not tested that higher IPOs underpricing in India because of the presence of individual and small investors, who are less informed than the large investors. Presence of a large number of uninformed investors would require the issuers to underprice their IPOs to a large extent to induce these investors to invest in IPOs (Rock 1986). Saurabh Ghosh (2002) in his study examined the uncertainty and signalling models of underpricing in the Indian context over the last decade. The empirical findings showed that there existed positive relationship between IPO underpricing and ex-ante measures of risk proxies. The relationship between underpricing and age of the company in a simple OLS framework showed that the age of the company could not explain the variations in the initial returns. This might be because of the fact that most of the companies that went public during the last decade were young, with an average age of seven and half years (and a low variance). Since most of the companies that tapped the capital market were young in terms of their age, it seemed that the Indian investors’ did not frame their opinion about the viability of a corporate from their age profile. However, the size of the project taken as
a proxy for the risk content of an issue showed a negative relationship negative which was significant at 1 per cent level. Further, while the coefficients of manufacturing sector and service sector dummies were not significant, the coefficient of software dummy was positive and significant at one per cent level showing investors’ concerns (that got reflected in high underpricing) about such new issues justified. **Arwah (2003)** in his paper on “Investments in IPOs in the Indian Capital Market” analysed the relationship between return on listing and factors such as issue size, age, foreign equity, issue rating, and issued capital. According to this study, significant negative relationship existed between return on listing vis-à-vis issue price, issue size and age of the company. As far as foreign equity was concerned, a positive relation is established between return on listing and the foreign equity holding present in the total equity of the company. Listing delay and the return on listing exhibit a significant negative relation i.e. less the amount of time taken to list at the stock exchange, higher is the initial return. **Jaitly & Sharma (2004)** studied Indian IPOs after the end of Controller of Capital Issues (CCI) regulation by testing and confirming the ex-ante uncertainty hypothesis. The authors used age and size of the companies as independent variables and offer price as dependent variable in their multivariate linear regression model, the authors observed a positive relationship between them, indicating that older and larger companies had higher IPO prices. They tested and accepted the information asymmetry hypothesis because they found that offer prices are higher when promoters (initial owners) keep more shares, as a signal of more commitment to the company and reduction of the asymmetric information gap. **S.S.S. Kumar (2007)** analysed the short run and long run performance of Book built IPOs in India by performing a cross sectional regression with the short run initial returns as dependent variable and size (the natural log of the issue size), dummy for before market conditions and quotient of offered price to the upper price as independent variables. From the regression results it was observed that only offer price quotient was found to be significant and the remaining variables were not statistically significant. **Pandey & Vaidyanathan (December 2008)** studied the underpricing of IPOs
listed at National Stock Exchange between 2004 to 2006. The multivariate regression analysis was based on factors like dummy for demand for the IPOs, listing delay, issue size and marketing expenditure (in millions of rupees) The result of this study showed that the coefficient of demand is positive and significant indicating more underpricing if the issue is finally priced towards the higher end of the price band. Similarly, the coefficient of listing delay had a significant positive relation with underpricing. Bansal & Khanna (2012) inter-alia analysed the diverse factors which affected the degree of underpricing after the stock market crisis. The variables used in the multivariate regression - issue sizes, market capitalization, institutional non promoters, number of shares and private IPO firms were found to be statistically significant at the level of underpricing. There was a negative relationship observed between variables like number of shares offered, issue size and private IPOs vis-à-vis the level of underpricing. At the same time market capitalization was positively related to the level of underpricing. However, timing of IPOs, Firm’s age, Indian promoters, foreign promoters, non-institutional non promoters and book build price mechanism were not statistically significant indicating any relationship with the level of underpricing.

**Long-run Performance of IPOs**

There are several reasons as to why the long run performance of IPOs becomes negative over long term. According to the ex-ante uncertainty hypothesis, if there is a great deal of uncertainty, the valuation of optimistic investors will be much higher. However, as time passes and more information becomes available, divergence of opinion between optimistic and pessimistic investors will narrow down and consequently price will drop in the market. From an investor’s view point, the existence of price pattern may present opportunities for active trading strategies to produce abnormal superior returns. It also provides evidence concerning Shiller (1990) hypothesis that equity markets in general and the IPO market in particular are subject to fads that affect the market price. Another reason cited for the long run performance of IPOs relates to large variation over time. If the issuance of IPOs in the high
volume period is associated with poor long run performance, this would indicate that issuers are successfully timing new issues to take advantage of the window of opportunities.

**J.R. Ritter (1991)** documented in his studies on long run performance of IPOs that in the long run IPOs appeared to be overpriced. Using a sample of 1,526 IPOs that went public in USA during 1975-84 he observed that in three years after going public, firms significantly underperformed vis-à-vis a set of comparable forms matched by size and industry. According to this study, underpricing was concentrated amount relatively young growth firms, especially those going public in high volume years of 1980s. Consequently, the small growth companies that pre-dominated among firms going public did not necessarily face higher cost of equity capital than is true for more established firms. A multivariate regression analysis (OLS) carried with three years total return as the dependent variable vis-à-vis market adjusted initial return, natural log of (1+age), market return for the same interval as the dependent variable, annual volume of IPOs in the year of issuance, dummy variable for companies representing oil and gas production, exploration, refining, service companies or oil and gas holding companies, companies representing banks, savings and loans and associated holding companies. With the exception of initial return, all the co-efficient were found to be statistically significant at conventional level with coefficient for annual volume and dummy for oil sector being negative. **Kooli & Suret (2001)** while examining the aftermarket performance of IPOs in Canada concluded that investors who buy immediately after listing and hold shares for five years will make a loss of 24.66% on equal weighted basis and 15.6% on value weighted basis relative to an investment in the control firm Overall the results indicate that that the firms going public during hot issues market underperform in the long run. **Alwarez & Gonzalez (2001)** analysed all the IPOs in the Spanish market issued during 1987-97 with a sample of 56 firms to provide evidence on initial underpricing and long run underperformance of IPOs. There exists long run underperformance when BHAR was used, but the same was not the
case when mean calendar time returns (monthly) were employed. Secondly, the study also showed that neither the characteristics of IPO i.e. IPO size, underwriters’ reputation nor those of the firm in the year prior to going public had a statistically significant influence on the stock return of the firm three or five years after going public. Using similar size companies as benchmark over a period of three years after the IPOs, Chan et al (2004) found that stock price return of 0.98 for A shares and 1.36 for B shares in the Chinese market. The variables that explained the long run returns were return on assets (ROA), sales growth and cash flows, all related to operational performance. Chi & Padgetto (2005, A) researched 340 and 40 IPOs issued during 1996 and 1997 respectively to analyse their short and long run performance. The authors documented initial return of 127.3% and 3 years BHAR of 10.7%. In addition, the initial return and three years BHAR were found to be negatively co-related, i.e., shares that had high initial return tend to have low long run performance and vice versa. Analysing the aftermarket performance, the authors observed that companies with small Government ownership had better long run returns showing that investors saw public ownership as political interference and inefficiency. The high-tech dummies were also positively related to aftermarket returns. Companies that produced products with high-tech contents had better performance which was in line with the expected high growth and high risk of these companies. Offers size variable was negatively related to the long run returns.

In the Indian context Madhusoodanan & Thiripalraju (1997) analysed the Indian IPO market for the short term as well as long term underpricing. They also examined the impact of issue size on the extent of underpricing in these offerings and the performance of merchant bankers in pricing these issues. The study, inter alia, indicated that in the long run, Indian offerings gave high returns compared to negative returns reported from other countries. S.S.S. Kumar (2007) analysed the short run and long run performance of Book built IPOs in India. The author captured the Monthly Market Adjusted Return (MMAR) over 3, 6, 9, 12, 24, 36, 48 and 60 months from listing. According to
this study, the return on IPOs beat the market return even after two years of listing, but thereafter IPOs they underperformed. The author was not categorical about underperformance of IPOs in the long run, but there was prima facie evidence of underperformance. The results of buy-and-hold returns showed that this strategy of buying IPOs on the listing day and holding them was not going to generate superior returns. This finding was again consistent with those reported from other countries. Compared with the international evidence, aftermarket performance of Indian IPOs over a three years' period of -14.69% was not very different from what has been reported from other countries. An important finding of this study was that the amount of underperformance in the long run has come down significantly compared with what had been reported in earlier studies. The decline in return over long run was probably due to the introduction of book building process, which was an important change that the public issue process witnessed from the early nineties to the present day. This was based on the argument that the earlier studies that documented underpricing had examined sample of IPOs that were issued following the fixed price route while the sample covered in the present study comprised IPOs that were issued only through book building route.

Rationale for the Study
It was observed from the past international studies that they mainly focused on testing various theoretical explanation/hypothesis for short run underpricing of IPOs as well as identifying the main determinants for initial returns in the IPO market. Even in case of studies on Indian IPOs, they were mainly focused towards testing various theoretical explanation/hypothesis explaining underpricing, identifying determinants of IPO underpricing both in short-run and long-term performance of IPOs, comparative studies of underpricing under fixed price and book building and processes, etc. No attempt had been made so far to broadly cover all major factors significantly influencing underpricing by presenting a composite model in a multivariate regression analysis framework. Similarly, the essence of the time-frame with
latest data on IPOs underpricing was also missing in the past studies. Even the latest study by Bansal & Khanna (March, 2012) on “Determinants of IPO Underpricing: An Empirical Evidence from Bombay Stock Exchange after Stock Market Crisis” was based on the IPOs that got listed on BSE during 2008 to 2011 and focused on limited variables like issue sizes, market capitalization, institutional non promoters, number of shares and private IPO firms only. Since IPOs are now a major source for investment especially by the Indian retail investors, and have gradually emerged as one of the important source for raising fund in the Indian primary market, it was important that the pricing of IPOs truly reflects the intrinsic value of the company. This would inculcate a fair degree of confidence among the potential investors and enable them to make informed investment decisions vis-à-vis offerings in the Indian IPO market. With strong market fundamentals and good prospect for growth, a sound capital market with a transparent mechanism for price discovery process would go a long way in leveraging India’s potential as a preferred destination for investment by both domestic as well as international investors. Hence from the policy perspective, an attempt was made to develop a model for explaining the possible level of short run underpricing in India.

A review of past studies showed that investment banks with high reputation underpriced IPO issues to a lesser degree as due diligence by highly reputed investment banks reflected less riskiness of the IPO among the investor community. By subscribing to an issue, investors were taking a bet on the reputation of the investment banks managing/co-managing the issue and hence they were willing to subscribe to it at lesser discount. A logical corollary to this argument was that if the valuation by investment banks didn’t reflect fair price of IPOs, the market might penalize them in subsequent period in terms of decline in the market share of issues managed /co-managed by them. Accordingly, it is always in the interest of investment banks to enforce underpricing equilibrium to the extent possible.
A perusal of past research shows that proxy for an investment bank reputation had been used in a number of studies as a variable influencing the initial returns in various countries, but none of the studies attempted to look into the relation between investment bank reputation and mispricing. However, it was Beatty and Ritter (1985) who also attempted to analyse the relationship between investment bank reputation and underpricing in their study on “Investment Banking, reputation and underpricing of Initial Public Offers”. In case of India also, no such studies came to the light during review of literature on underpricing of IPOs.

Of late, it was observed that investors in the Indian capital market, especially the non-institutional investors and small investors who aimed for a reasonable return on public offer are not really willing to see their investment in red. The pricing disconnect in the IPO market has stayed far too long and prices of some of the IPOs had to be revised downwards to attract additional investors. Some other issues had to be withdrawn before due to poor response to the issue. While the overall bearish market conditions could be attributed to as one of the important reasons for this trend, such price band revision or withdrawal of issues also severely reflected on strong pricing justification by the investment banks fundamentally. If an issue is priced on the basis of strong fundamental, these were not expected to change substantially in the short to medium term. In view of the above, an attempt was made to examine the issue as to how the reputation of an investment bank whose offerings have average initial returns not commensurate with the market perception of the quality of IPO will be affected. This was done by defining an investment bank reputation in terms of its share in IPO business (in terms of total proceeds as well as number of issues).

While there was a general consensus that IPOs have abnormal positive IR in the short run, previous studies also showed that in the long run the initial returns becomes negative over time. Past studies had thrown light on various factors such as ex-ante uncertainty hypothesis, window of opportunities
hypothesis, etc. as the possible reasons for pattern associated with the long-term return on IPOs. Accordingly, with the same consideration as in the case of short-run underpricing it was decided to study of the factors influencing the long run performance of India IPOs and also to examine the changes in the relative importance of various factors influencing pricing of IPOs in the long run vis-à-vis the short run performance.

Objectives, Methodology and Database
Keeping in view the background and the rationale of the research as summarised above, the study had the following objectives:

- To study the pattern of underpricing of Indian IPOs across time, issue size and sector/market segment.
- To identify the factors affecting short-run underpricing of IPOs in India.
- To suggest a model which could explain the possible level of underpricing for Indian IPOs.
- To examine the relationship between mispricing of IPOs by an investment banks during a given period and change in their market share in the subsequent period.
- To identify the factors influencing the long run performance of IPOs and its comparative analysis vis-à-vis the factors influencing their short run performance.

Basic data for companies issuing IPOs from March, 2000 to December, 2011, had been obtained from Prime Database containing information, such as opening and closing date of issue, price band, offer price, employees share, date of listing, closing price at the end of 1st day, 7th day, 1 month, 3 months, 6 months, 1 year, 2 years and 3 years, details of the lead manager/co-manager, industry/sector, uses, etc. Thereafter, the details of income of the company, industry P/E ratio, date of certificate of incorporation, etc. were taken from the draft prospectus filed by each of these issuing companies with SEBI. Some of the details about market values of IPOs at different moments, especially 1 year, 2 years, 3 years were accessed at www.moneycontrol.com. However,
since there are a lot of missing data in respect of the IPOs issued between April, 2000 to March, 2010 especially in regard to the listing and closing price details for different moments the reference period for this study had subsequently been taken as April, 2002 to December, 2011 thereby covering 432 IPO issues.

The details of GDP, Wholesale Price Index (WPI) and Index of Industrial Production (IIP) for the reference period had been obtained from the Central Statistical Organisation (CSO), Ministry of Statistics and Programme Implementation (www.mospi.nic.in) Department of Industrial Policy and Promotion (DIP&P), Ministry of Commerce and Industry website (www.dipp.nic.in). Both WPI and IIP index had been used to calculate and the time series data for inflation and rate of growth of industry. The details of the implicit yield at cut-off price for the 91 days Treasury Bills in the last week of the month immediately preceding the month in which the issue had been closed was obtained from RBI monthly bulletin as provided on its website (www.rbi.org.in). The Put-Call Ratio of the NIFTY index option as a proxy for investors’ sentiment was sourced from National Stock Exchange (NSE).

In view of the fact that the long term relationship was also to be examined with reference to price, industrial growth, interest rate, GDP growth FII inflows, investor sentiment the time-series data for these parameters, namely, WPI, IIP, CDROI, GDP, net FII inflows, put-call ratio were suitably revised corresponding to 6 months, 1 year and 2 years trading dates which were the reference point for taking the returns on IPOs as dependent variables in the regression analyses.

Multivariate linear regression model (OLS framework) had been used in this study to identify variables that may explain the level of underpricing. To start with, IR (dependent variable) had been regressed vis-à-vis 20 independent variables identified on the basis of the past research. Based on the results of bivariate regression analysis, 13 variables significantly influencing short run
underpricing at 20% level of significance or below were identified in the first stage as variables influencing short run initial return on Indian IPOs. Since there were prior result hypothesising and explaining the relationship of the shortlisted variables vis-à-vis short run underpricing of IPOs and the direction of relationship, one tail test had been applied to test the level of significance of the short listed variables. The 13 variables identified at the first stage as detailed above were then regressed vis-à-vis initial return in within the framework of multivariate regression analysis. Thereafter, the pair-wise cross correlation coefficients were analysed to identify some of the overlapping independent variables which could be dropped so that no multicollinearity is encountered while performing the multivariate regression analysis. After identifying the overlapping independent variables, the multivariate regression analysis has been undertaken to identify factors which significantly influences the short run underpricing of Indian IPOs.

For testing the mispricing hypothesis, the model developed for predicting the possible level of underpricing was used to calculate the predicted short run initial returns, which were then subtracted from the actual initial returns to arrive at the residuals. Thereafter, based on the study of Beatty and Ritter (1985) absolute standardised average residual are calculated for each of the 432 IPO issues for taking them as a measure of mispricing. After dividing the issues into 7 groups with three years period each i.e. 2002-05, 2003-06, 2004-07, 2005-08, 2006-09, 2007-10 and 2008-11, they were further shortlisted to arrive at the total number of IPOs managed/co-managed by each investment banks in all the 7 groups. Thereafter average residual for each investment banks in every group was arrived at on the basis of the absolute value of residuals and the total number of issues managed/co-managed by them. The average residual, thus arrived at was further divided by the standard deviation of the mean initial return of investment banks to get the standardised average residuals. The standardised average residual, thus arrived at had been used as the measure of mispricing by an investment bank for the purpose of testing of the mispricing hypothesis. As far as the market
share of investment banks was concerned, this ratio had been calculated both in terms of share in number of issues as well as proceeds for each year starting from 2002-03 to 2010-11. Thereafter, change in market share of investment banks in 2005-06 as compared to their average market share of 2002-05 was computed for using as dependent variable in the proposed regression. The same process had been repeated for computing change in the market share of investment banks during 2006-07 (over 2003-06), 2007-08 (over 2004-07), 2008-09 (over 2005-08), 2009-10 (over 2006-09), 2010-11 (over 2007-10) and 2011-12 (over 2008-11). It was presumed that an investor on an average had a 3 years’ past memory for average mispricing of an issue by an investment bank, which he or she might take into consideration while deciding to subscribe a particular issue managed/ co-managed by the same investment bank in the subsequent period. The sample data, thus arrived at for the proposed regression analysis was in the nature of both cross-sectional and times series. Hence pooling technique was used to create a balanced panel data using the 7 cross sectional data starting from 2005-06 to 2011-12. The data on mispricing series thus arrived at is regressed with change in the market share as the dependent variable. However, Hausman Test (correlation random effect) was conducted to decide the applicability of random or fixed effect in the proposed regression analysis.

For the long term analysis, dependent variables, namely, 6 months, 1 year and 2 years returns were regressed vis-à-vis 20 independent variables identified on the basis of the past research. Based on the result of the bivariate regression analysis, variables significant at 20% or below were identified in the first stage as factors influencing long term return on IPOs in India. The variables so identified at the first stage were then regressed vis-à-vis dependent variables at different moments, namely, 6 months, 1 year and 2 years. Thereafter, the pair-wise cross correlations were analysed to identify some of the overlapping independent variables which could be dropped so that no multicollinearity is encountered while performing the multivariate regression analysis. After identifying the overlapping independent variables,
the multivariate regression analysis had been finally undertaken to identify factors which significantly influences the long run return on Indian IPOs over the time horizon of 6 months, 1 year and 2 years respectively.

8.2 MAJOR FINDINGS OF THE STUDY

Salient features of IPO underpricing which emerged after the analysis of the results of the descriptive statistics of the empirical data is summarised and concluded as under:

- Although the short-run IR on Indian IPOs came down significantly over time, the underpricing still seems to be high as compared to some of the developed international markets as shown in Table 4.2 of chapter 4. Based on the past studies, the reduction in underpricing could be attributed to factors like introduction of book-building process, change in regulation whereby the allocation to informed institutional investors has been allowed, etc.

- The Indian IPOs market is largely speculative in nature where the investors are looking for maximum return on their investment on the very first day of the listing of IPOs. In the other words, the investors are not taking a long term view on the market while subscribing to IPOs in the Indian market.

- The period of higher market return is subsequently followed by period of high volume of IPOs. The pattern indicates that during an upswing in the market, an issuer try to take advantage of the bullish market trend and the issue may draw more investors leading to higher demand, especially if the demand is properly gauged during the book building process. In general, the lead and lag pattern with respect to market return is further confirmed when the short-run initial return on the 432 issues covered in this research is plotted against the market return across time.

- The overall trend of a higher standard deviation exhibited with higher number of issues in the Indian capital market confirms to the conventional wisdom among both academics and practitioners that the quality of the
firms going public deteriorates as a period of high issuing volume progresses.

- Large offers are expected to have less initial underpricing because they tend to be better priced and are less risky. The position is confirmed in Indian case in terms of the relation between mean IR and issue size. However, there are exceptions to this trend which could be explained in terms of finance industry hypothesis termed as “grandstanding an IPO”. According to this hypothesis, a firm will intentionally underprice their issued specifically for the attention gains by the first day run-up in the stock price. This gives the firm added publicity and media exposure while simultaneously proving the firms value to the investors. However, in case of India this could be explained by the fact that after crossing a threshold limit, the mega issue offers normally have greater number of end-use objectives resulting into higher uncertainty and hence higher degree of underpricing.

- A high level of underpricing for market segment like IT & ITeS is on account of difficulties in valuation of their assets which are largely intangible nature. This also indicates that industries with shorter and less information history will be more under-priced as there is more uncertainty about the issuing companies. Further, products using hi-tech industry are considered risky than the traditional industry resulting in higher initial underpricing. The ‘high risk high growth’ nature of these companies gives rise to higher uncertainty resulting into higher degree of underpricing.

- As far as banks and financial services are concerned, since their projected cash flows depend on the future direction of interest rates, it results into higher uncertainty leading to a higher level of underpricing. Further, disinvestment of Government owned banking and financial institutions is not good news for the investors and it gives a signal to the market that the Government is not able to finance its expenditure through its own revenue resources and hence resorting to divestment of its shares in the public sector banks and financial institutions to meet the shortfall.
As far as infrastructure, power, oil and gas segment is concerned, again valuation of these projects is based on their discounted cash flows and research and development. This makes the valuation relatively uncertain and hence higher level of underpricing is demanded by the investors for the higher risk associated with the investment in such companies.

Based on the multivariate regression analysis, the model suggested for determining the possible level of short run underpricing consist of 9 significant variables, namely time subscribed, company size, investor sentiment, uses, listing delay, industry PE ratio, investment bank reputation, dummy for private companies IPOs and companies representing the new economy such as IT & ITeS, media & entertainment, telecom, biotech, pharma, etc. The sign of the co-efficient of the significant variables of this model is also found to be in conformity with the findings of international/ Indian studies on underpricing of IPOs. Based on the regression model developed for determining the level of possible level of short run underpricing, the predicted short-run underpricing of 26.11 % more than actual short-run underpricing of 24.93%. This shows that the market for Indian IPOs is overpriced and the difference of (-) 1.18 is recovered through price correction in 6 months when the return on IPOs becomes (-) 1.21%.

An analysis of the trends in initial returns on IPOs across short run as well as long run time horizon (extending up to a time frame of 3 years) in this study showed that the first day initial return of 24.93% (calculated with respect to the 1st day of closing price) becomes negative in the subsequent periods up to 6 month (7 day, 30 days, 90 days and 180 days) before marginally going up to 2.30% at the end of 1 year with the long term returns at different point of time being calculated with reference to the first day closing price. However, the returns thereafter becomes negative at the end of second year (-9.94%) and this trend continuing even up to 3 years (-11.63%). The trend in long term returns on Indian IPOs confirms to the international findings that in the long run the positive abnormal initial returns become negative overtime.
In terms of the underpricing model developed to study the possible level of underpricing of Indian IPOs chapter 5 of this study, it is observed that while an investment bank reputation, defined in terms of market share in IPO issues (IBRI) is not significantly related to short-run initial return, it does exhibit a negative relationship when reputation is defined in terms of share in IPO proceeds (IBRP). However, this latter relationship is also significant only at 20% level (one tail test). When this relationship is studied vis-à-vis the findings of this study on mispricing, it may be safely concluded that investment banks’ reputation may not be a significant factor in explaining the short-term underpricing of IPOs, however, if the bank misprices an IPO during a given period, it will be penalised by the market players (issuers as well as investors) in terms of decline in its market share (taken as a proxy for investment bank reputation and is defined in terms of share in both issue proceeds as well as issues) in subsequent period. It is observed that change in the market share and investment bank’s reputation exhibited a negative relationship with the co-efficient of mispricing approximately being same i.e. 0.09% (rounded off to the 2 decimal places) irrespective of whether the bank’s reputation is defined in terms of proceeds or in terms of issues. In the other words, according to the findings of this study, if an investment bank misprices an issue by 1% during a particular period, it will lose its market share in the subsequent period by around 9%. This precise relationship may be noisy in terms of statistical findings, however, the directional change in the market share as a result of mispricing is not ruled out totally.

An analysis of the factors affecting short-run and long run return on Indian IPOs shows that they are fundamentally different from each other. According to the model developed for predicting the possible level of underpricing in chapter 5, the main factors affecting the short-run IR relates to issues specific and market related factors like times subscribed, company size, listing delay, companies representing new economy, private IPOs, no. of uses of IPOs, investors’ sentiment, investment bank reputation (defined in terms of proceeds) and Industry PE ratio. However, an analysis of the long term return
shows that macro-economic parameters like inflation, industrial growth, GDP growth, interest rate becomes significant factors in determining the return over 6 month to 1 year and 2 years. In addition to these factors, other factors determining the 6 month return includes no. of uses of IPO proceeds and Industry PE ratio. Similarly other factors influencing 1 year return include investor’s sentiments (defined in terms of put-call ratio of NIFTY index option), investment bank reputation (IBRI -defined in terms of number of issues) and dummy D5 (private companies IPOs). Similarly, investment bank reputation (IBRP-defined in terms of share in proceeds raised), industry PE ratio, age of the company and dummy D5 (private companies IPOs) are the other factors which influences 2 years return on IPOs. It may thus be concluded that while the macro-economic parameters do become significant in deciding the long term return on Indian IPOs, there are other industry/market related factors like industry PE ratio, investors' sentiment which also influence long term return in the Indian market. Company/issue related parameters like end use utilization of IPO proceeds and age of the company may also influenced the long term return at different point of time over the long term horizon depending on the diffusion of the information in the market at different moments for different class of investors.

8.3 POLICY IMPLICATIONS

Based on the findings of this study and with a view to further streamline the IPO market in India, the following policy recommendations are suggested below, which may be of relevance for the Government, SEBI, investment banks (also known as merchant banks in India) and other market participants:

➢ There must be a lock-in period prescribed for the IPOs before they can be off-loaded in the market. Based on the model suggested to predict the possible level of underpricing in this study, it is observed that that the market for Indian IPOs are relatively overpriced and the price corrections take place roughly over a period of six month. Accordingly, a minimum lock-in period of 3-6 months may be considered for this purpose.
- Investment banks may be required to disclose the performance of IPOs managed/co-managed by them for at least the last three years. This policy suggestion is based on the findings of this report that while reputation of investment banks may not be a significant factor in explaining the short-term initial return on IPOs, if they misprice IPO issues during a given period, market players (issuer as well as investors) will penalized them which may be reflected in terms of decline in their market share in subsequent period. This precise relationship may be noisy in terms of statistical findings, however, the directional change in the market share as a result of mispricing is not ruled out totally.
- To address the above issue, SEBI could also consider recommending a bench-marked model for fair valuation of IPOs. Any significant deviation from fair valuation need to be justified by the investment banks.
- It is observed from the findings of this study that larger the number of uses of IPO proceeds, higher is the degree of uncertainty resulting into higher degree of underpricing. In order to address this issue, SEBI may consider prescribing some mechanism for an effective monitoring of end-use restrictions of IPOs.

8.4 DIRECTION FOR FUTURE RESEARCH
An attempt has been made in this study to present a composite analysis covering all aspects of underpricing, such as, identifying factors affecting short-run underpricing of IPOs in India, suggesting a model which could explain the possible level of underpricing for Indian IPOs, examining the relationship between mispricing of IPOs by an investment bank during a given period and change in their market share in the subsequent period, identifying factors which influence the long-run performance of IPOs and its comparative analysis vis-à-vis the factors influencing their short run performance, etc. Similarly, the essence of the time-frame with latest data on Indian IPOs has also been taken care of by expanding the data-base of this study over a period of almost 10 years (April 2002 to December 2011).
However, to further improve upon the present study, suggested research for future is as follows:

- Allocation pattern between the retail and institutional investors may be studied as an additional factor influencing the short run underpricing of Indian IPOs.

- To examine the pattern of underpricing associated with the book-building or fixed price offerings method of allocation of IPOs in India.

- To examine, if there is a correlation between the factors affecting underpricing of IPOs and future public offerings (FPOs) in India.

- Case study of companies that have performed with highest and lowest returns on IPOs in the study (i.e. top 5% and bottom 5% performer in the sample data) needs to be further explored as the findings could be useful to predict other possible anomalies in underpricing of Indian IPOs.

- Impact of factors like allocation pattern between institutional and retail investors, process followed for IPO allotment and prescription of disclosure norms on the overall robustness of the underpricing model suggested in the study could be further examined.