The Value of Unaffiliated Analyst Recommendations b*efore* the IPO: Evidence from Indian IPOs

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Abstract

Brokerage firms and financial press spend considerable amounts of money on security analysis. While many papers on the investment value of brokerage recommendations of listed firms have been published, little research has been done to understand the value of brokerage recommendations available *before* the offer, primarily because recommendations are usually unavailable before the IPO. We bridge this gap by studying the analyst recommendations of 257 IPO firms in India during 2001-2010. Our study shows that analyst recommendations explain subscription levels, underpricing, listing day trading volume and long-term performance of IPO firms. We conclude that IPO security analysis is useful for investors and issuers.

Introduction

Past studies have shown that when a firm goes public for the first time, analyst coverage is initiated almost immediately. While the options available to analysts typically include buy or avoid (or similar terminology), there is an overwhelming tendency to issue buy recommendations. For example, Bradley et al. (2003) find that analyst coverage is initiated immediately for 76 percent of IPOs during 1996 to 2000, almost always with a favorable rating. Several reasons have been propagated for this occurrence. One reason is the fact that sell-side analysts are expected to endorse firm quality following the taking of the company public by the investment firm's investment banking unit. Another explanation is that analysts are overoptimistic about the earnings potential and long-term growth prospects of recent IPOs (Rajan and Servaes (1997)). Michaely and Womack (1999) conclude that the recommendations by underwriter analysts show significant evidence of bias. Studies have also documented the relationship between IPO characteristics and analyst forecasts and the impact of analyst forecasts on stock returns (Zheng and Stangeland, 2005; James Ang and Stephen Ciccone, 2001). However, research is very limited on analyst recommendations available *before* the IPO.

Our study is significant for several reasons. First, it could influence the investor's decision to invest or not in the IPO. Given that IPOs are typically underpriced in the short run, this option is unavailable when analyst coverage is initiated weeks or months after the IPO. For example, Bradley et al. (2008) examine 7400 analyst recommendations during the 1999-2000 period and find that initiation of coverage at the end of the quiet period comes mainly from affiliated analysts (i.e. part of the underwriting syndicate). The SEC does not allow analysts whose employers are members of the underwriting syndicate to issue recommendations for 25 days after the IPO (since 2002, this period has been increased to 40 days). As a result, analyst recommendations are unavailable to investors at the IPO.

Second, when information production about a firm is sparse or there is a lack of accurate assessment of a firm's fundamentals, investors are more prone to biases in valuing securities. Dong et al (2011) show that IPO overvaluation is greater when there is a lack of accurate feedback about firm fundamentals. Thus, brokerage analyst recommendation at the time of IPO reduces behavioral biases.

Third, if analyst recommendations are available before the IPO, then this reduces the information asymmetry between the firm and prospective investors, especially if recommendations are available from unaffiliated analysts. The literature has argued that highly reputed underwriters and VC-backed firms provide certification value. Similarly, subscribe, neutral, and avoid statements by analysts add a further dimension and provide valuable information to prospective investors. From the investor's perspective, these recommendations may also act as substitutes and take some of the pressure of hiring highly reputed underwriters and VCs.

Fourth, the only information about the firm that would be available to companies issuing recommendations would be the information contained in the prospectuses prior to the firm going public. Given that firms are required to disclose limited information (e.g. the last three years financial statements), analyst certification would be extremely useful.

Fifth, the buy recommendation bias mentioned above should be at its peak at the IPO especially when analyst coverage is initiated by the same firm that took the company public. If research coverage is simultaneously initiated by independent companies including the press, the full extent of the bias can be captured. However, since IPO recommendations are usually provided by unaffiliated analysts we would not expect them to be biased. On the flip side, if they provide coverage with the objective of receiving future business from issuers, it is possible that the recommendations would be biased. But reputational concerns prohibit them from providing biased recommendations.

Sixth, Earlier studies have noted that lead managers of IPOs recruit co-managers with the objective of purchasing future analyst coverage from these co-managers (Loughran and Ritter, 2002). Bradley, Jordan, and Ritter (2008) find that larger syndicate size is associated with more aftermarket analyst coverage, suggesting that larger syndicate size leads to more information. Cliff and Denis (2004) argue that firms pay for analyst coverage via the underpricing of the offering. Issuers would not be under pressure to hire more co-managers (i.e. bankers) or underprice more if analyst coverage is available from independent sources before and after the IPO respectively.

Finally, after examining more than 2000 analyst recommendations from India, Chakrabarti (2005) finds that analysts tend to be optimistic in their predictions and are more likely to

recommend buys than sells. Further, at the minimum, the recommendations are valuable in the four-month period following the recommendation and buy recommendations are the most valuable. He also finds that analyst opinions have some impact on stock prices. However, his focus is not on IPOs.

Using a sample of IPOs from India for 2001-2010 we examine the impact of recommendations by analysts and the financial press available before the IPO on short and long term performance. In India, IPO Grading and IPO Recommendations are among the popular inputs investors use in applying to an initial public offering of shares. IPO Recommendations are provided by various brokerages and reputed financial dailies. Some of the popular IPO Recommendation providers in India are brokerages such as Motilal Oswal that have a pan-India presence, financial magazines (investment journal) such as Capital Market, financial dailies such as Business Line, and financial websites such as www.moneycontrol.com. IPO *Grading* is provided by Securities Exchange Board of India (SEBI) approved rating agencies including CRISIL (an affiliate of Standard & Poor's), CARE (an affiliate of Moody's), ICRA and Fitch Ratings. IPO Grading is designed to provide investors with an independent, reliable and consistent assessment of the "fundamentals" of IPO companies.

In this paper we address four main issues related to analyst recommendations at offer:

1. Can analyst recommendations be predicted?
2. How do recommendations affect the subscription patterns of different categories of investors, underpricing, listing day trading volumes and liquidity?
3. Do IPOs that are given a subscribe recommendation generate superior market adjusted returns in the long run?
4. Does security analysis before the IPO reduce investment bank syndicate size?

Our findings show that analyst recommendations play a crucial role in investors' decision to invest in the IPO. Subscribe IPOs have significantly higher subscription levels than avoid IPOs. Analyst recommendations have a significant impact on the level of underpricing and the first-day trading volume**.** Finally, there is evidence that subscribe recommendations have better long-term performance. Our main conclusion is that recommendations available to investors before the IPO are useful to investors in their buying (or avoid) decisions.

The rest of the paper is organized as follows. In section 1 we survey the related literature and present testable hypotheses. In section 2 we describe the data and sample. In Section 3, we present empirical results. The long-term impact of analyst recommendations is in Section 4. Section 5 concludes.

1. Literature Review and Hypotheses Development

Our paper contributes to several strands of research in finance. First, a large number of studies starting with Ibbotson (1975) have documented the underpricing of IPOs in the US and elsewhere (Loughran, Ritter, and Rydqvist, 1994)[1]. Since the 1960s, this "underpricing discount" has averaged around 19% in the United States. Underpricing has fluctuated a great deal, averaging 16% in the 1980s, 21% in the 1990s, and 40% during 2000-2004 (Ljungquist, 2007). Underpricing is much higher in many countries outside the U.S. This underpricing has been attributed to information asymmetry between issuers and investors or between informed and uninformed investors, agency problems, investor sentiment and institutional reasons. As underpricing is costly (because issuers get less), companies conducting IPOs often use a certification mechanism to reduce information asymmetry between managers and outside investors. These mechanisms can take on various forms like a formal grading by a rating agency (a practice in India), venture capital investment, affiliation to business groups, underwriter reputation, bank relationships, affiliation to financial institutions etc. Many papers have explored the benefits of certification by third parties in the context of IPOs. Marisetty and Subrahmanyam (2008), explore the outcome of group affiliation; Krishnamurti et al (2009) investigate the impact of certification by rating agencies (IPO grading in India); Barry, Muscarella and Vetsuypens (1990), Megginson and Weiss (1991) and Lee and Wahal (2004) study the impact of venture capital association on IPO underpricing. The results of these studies are mixed. Some find that IPO underpricing reduces with certification (Megginson and Weiss, 1991) whereas others find the contrary (Lee and Wahal (2004), Marisetty and Subrahmanyam (2008)). In contrast to the earlier papers, we study the impact of analyst recommendations on underpricing. In general, the availability of analyst recommendations would solve information problems for investors. Consequently, good quality firms would be able to get a better price for their firms' shares. Likewise, low quality firms would find it difficult to raise capital.

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[1] Underpricing is the difference between the listing price and the issue price expressed as a percent

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Second, there is a vast body of research on the value of brokerage analyst recommendations starting with Womack (1996), who finds that analysts have market timing and stock picking abilities. Bradley et al. (2003) find that analyst coverage is initiated immediately for 76 percent of IPOs during 1996 to 2000, almost always with a favorable rating. Several reasons have been propagated for this occurrence. One reason is the fact that sell-side analysts are expected to endorse firm quality following the taking of the company public by the investment firm's investment banking unit. Another explanation is that analysts are overoptimistic about the earnings potential and long-term growth prospects of recent IPOs (Rajan and Servaes (1997)). Research by Dugar and Nathan (1995), Lin and McNichols (1998), Dechow, Hutton and Sloan (2000) and Michaely and Womack (1999) has documented systematic differences between the reports issued by analysts with and without investment banking ties to the companies they cover. These studies consistently find that analysts who serve as lead or co-underwriter of an equity offering issue more optimistic earnings growth forecasts and more favorable recommendations than unaffiliated analysts. McNichols et al (1996) find that affiliated recommendations do not discriminate between good and bad IPO stocks. They also find that unaffiliated analyst recommendations do not earn higher abnormal buy-and-hold returns than recommendations than affiliated analyst at intervals of three, six or twelve months after the recommendation

Studies have also documented the relationship between IPO characteristics and analyst forecasts and the impact of analyst forecasts on stock returns (Zheng and Stangeland, 2005; James Ang and Stephen Ciccone, 2001).

If investors are guided by analyst reports at the IPO, then trading volumes following the IPO should be higher for subscribe rather than avoid recommendations. The existing literature finds that underpricing influences analyst coverage. For example, Rajan and Servaes (1997) find that the number of analysts following a stock is positively related to underpricing, after controlling for the post-IPO market value of equity. Aggarwal et al. (2002) find that underpricing is positively related to analyst coverage by non-lead underwriters. Bradley et al. (2003) find that the probability of coverage being initiated after the quiet period ends is positively related to the degree of underpricing. Bradley et al. (2008) find that underpricing has an influence on analyst coverage immediately after the quiet period ends while it has no impact on coverage during the subsequent eleven months.

Research is very limited on analyst recommendations available *before* the IPO. Analyst recommendations are not available to investors before the IPO in many countries, including the U.S. Bradley et al. (2008) examine 7400 analyst recommendations during the 1999-2000 period and find that initiation of coverage at the end of the quiet period comes mainly from affiliated analysts (i.e. those part of the underwriting syndicate). The Securities Exchange Commission of the U.S does not allow analysts whose employers are members of the underwriting syndicate to issue recommendations for 25 days after the IPO (since 2002, this period has been increased to 40 days). As a result, analyst recommendations are unavailable to investors at the IPO. India provides a natural setting to test the value of analyst recommendations before a firm goes public.

Bradley et al (2003) state that firms going public impact analyst coverage in three ways: First, if a firm wants certain analysts to cover it after it goes public, then it can include the analysts' investment banks as managers in the offer. Second, the firm can get more coverage by including more co-managers in the syndicate. Finally, underpricing may attract analyst coverage. In this respect, our study is different in that since analyst recommendations are available at the offer, we can examine the impact of recommendations on underpricing while it is just the reverse for most studies including Bradley et al. (2003).

Third, several papers have studied the impact of issue process on investor subscription, especially in the Indian context. The Indian IPO book building process is transparent and it is required by regulation that the subscribers' application information, by investor type, be available online during the IPO book building period. This allows us to observe the timing and subscription pattern, for the different investor groups, over the book building period (this is not the case with the US and other markets). Khurshed et al (undated) explore the impact of this unique feature of book building on the subscription pattern and underpricing of IPOs. They suggest that non-institutional investors follow the lead of the more sophisticated institutional buyers and that this solves the adverse selection problem faced by retail investors (commonly referred to as the "winner's curse" (Rock, 1986). Their paper is based on the assumption that retail and non institutional investors imitate institutional investors in subscribing to IPOs because they have no other source of investment advice. This is not actually the case. India is perhaps the only country where brokerage houses publish analyst reports on upcoming IPOs providing investment advice. Further, investors have access to IPO grades (certifying firm fundamentals)

published by credit rating agencies (this is mandatory for issuing companies) and investment advice given by well known brokerage and non brokerage sources. They do not show that institutional investors have better valuation skills than professional analysts. If institutional investors are no better than professional analysts, retail investors would be better off taking investment advice from brokerages.

More importantly, they do not show that retail investors earn abnormal returns in the short or the long run by following institutional investors. That is, do institutional investors (and by extension, retail investors) make money by investing in IPOs. A large number of studies in the Indian and the global context have shown that IPOs produce disappointing returns over the medium to long term (Loughran and Ritter, 1995). If this is the case, retail investors would be better off by making their own investment decision. We test whether investors can earn abnormal returns by following brokerage and non brokerage recommendations over a 3 year horizon.

In a study of IPO grading in India, Krishnamurti et al (2009) find that IPO grades are significantly positively associated with retail and institutional subscription levels. They notice a remarkable difference in retail and institutional demands with respect to grades of issues. While institutional interest monotonically increases with grades, retail investors' interests are segmented. Deb and Marisetty (2010) find that IPO grading results in lower underpricing. Since IPO grades convey information relating to firm fundamentals, and not issue price, it is not clear if investors act upon IPO grading. Analyst recommendations, in contrast, convey price related information. That is, they tell us if investors can earn at least risk adjusted returns at the issue price.

We add to this literature by showing how analyst recommendations can affect institutional and retail subscription to IPOs. We examine the impact of subscription levels by the three groups of investors; Qualified Institutional Buyers (QIBs), Non-Institutional investors, and Retail investors. QIBs are Institutional investors. In the Indian capital markets, QIBs act on brokerage reports which are almost exclusively available to them. On the other hand, retail investors do not have access to brokerage reports. So, we expect subscriptions to be stronger for QIBs than for retail investors. Since retail investors usually do not have access to brokerage recommendations they may obtain Capital Market or Business Line recommendations that are widely circulated. Therefore, subscription levels in Capital Market and Business Line recommendations should be

significantly higher for retail investors. If analyst recommendations are available before the IPO, then they can be used by investors in their purchase decisions. If this is the case, subscribe IPOs should have higher subscription levels for all three categories of investors.

Fourth, if analyst recommendations are indicators of long-term performance, then IPOs with a subscribe recommendation should have higher liquidity in the long-run. Brennan and Subrahmanyan (1995) and Brennan and Tamarowski (2000) suggest that an increase in analyst coverage improves liquidity. This relation stems from their argument that greater competition between informed traders reduces the asymmetric information component of the bid-ask spread. Following on these lines, Irvine (2003) examines trading volume, quoted spreads, and institutional ownership in the pre and post period of initiation of coverage. He finds that liquidity improves following coverage initiation. He further finds that the more positive the analyst's initial recommendation, the greater the liquidity improvement. Strong buy recommendations result in more liquidity than less aggressive buy, hold or sell recommendations. The stronger the initial recommendation the stronger is the relation between underpricing and the subsequent liquidity improvement. In line with the above, we expect positive recommendations to result in greater liquidity.

1.1. Impact of Analyst Recommendations on Subscription, Trading volume, Liquidity, and Underpricing

We first examine the impact of subscription levels by the three groups of investors; Qualified Institutional Buyers (QIBs), Non-Institutional investors, and Retail investors. QIBs are Institutional investors. In the Indian capital markets, QIBs act on brokerage reports which are almost exclusively available to them. On the other hand, retail investors usually do not have access to brokerage reports. So, we expect subscriptions to be stronger for QIBs than for retail investors. While retail investors don't have access to brokerage recommendations, retail investors obtain Capital Market and Business Line recommendations. Therefore, subscription levels in Capital Market/Business Line recommendations should be significantly higher for retail investors. If analyst recommendations are available before the IPO, then they can be used by investors in their purchase decisions. If this is the case, subscribe IPOs should have higher subscription levels for all three categories of investors.

H1: IPOs rated Subscribe have Higher Subscription Levels than IPOs rated Avoid

Theories of underpricing can be grouped under four broad categories: asymmetric information, institutional reasons, control considerations, and behavioral approaches (Ljungqvist, 2007). Asymmetric information models assume that one of these parties (investment bank vs. issuer or informed vs. uninformed investors) knows more than the others leading to misaligned incentives. The consequence is that underpricing is used to induce optimal selling effort by the bank or investment by investors. Control theories argue that companies deliberately sell their stock at a discount to reduce the likelihood of future lawsuits from shareholders disappointed with the post-IPO performance of their shares. Behavioral theories assume either the presence of irrational investors who bid up the price of IPO shares beyond true value, or that issuers suffer from behavioral biases causing them to put insufficient pressure on the underwriting banks to have underpricing reduced.

If investors are guided by analyst reports at the IPO, then trading volumes following the IPO should be higher for subscribe rather than avoid recommendations. The existing literature finds that underpricing influences analyst coverage. For example, Rajan and Servaes (1997) find that the number of analysts following a stock is positively related to underpricing, after controlling for the post-IPO market value of equity. Aggarwal et al. (2002) find that underpricing is positively related to analyst coverage by non-lead underwriters. Bradley et al. (2003) find that the probability of coverage being initiated after the quiet period ends is positively related to the degree of underpricing. Bradley et al. (2008) find that underpricing has an influence on analyst coverage immediately after the quiet period ends while it has no impact on coverage during the subsequent eleven months.

While the above studies focus on the influence of underpicing on research coverage, our study is unique in that, since we have analyst recommendations before the IPO, underpricing becomes our dependent variable. Why is this important? Analyst coverage before the IPO adds one more dimension to IPO certification. Underwriter reputation and VC backing have been traditionally used to reduce information asymmetry between the firm and prospective investors. Issuing firms can try to reduce investor uncertainty about the value of the securities that the firm is offering by using prestigious underwriters. High prestige investment bankers, with valuable reputation

capital at risk and superior information regarding the issuing firm's prospects, can credibly certify the value of issues they underwrite.

Prior research on financial intermediation in initial public offerings generally finds that investment banker reputation is significantly related to issuing-firm performance. For example, Carter and Manaster (1990) find that IPOs by high-prestige investment bankers have less underpricing. Other researchers find that, for IPO firms, banker reputation is positively associated with both announcement-period and long-run returns (Michaely and Shaw, 1995). These studies support an important information role for investment bankers in IPOs. The availability of analyst coverage before the IPO may take some pressure off the firm to be VC-backed and have high reputation underwriters. In other words, there could be a substitution effect. Our paper differs from others in that analyst recommendations are available *before* the IPO.

Since analyst reports increase information production we would expect undepricing to reduce. While analyst recommendations may be used by investors in the purchase decisions, investors may not be allocated all the shares they demand. In the Indian capital markets, many issues are over-subscribed several times and investors are allocated shares pro-rata. As a result, buy recommendations could be used by investors to purchase additional shares after the company has gone public. Investors who did not get an allocation in the IPO or chose not to apply for IPO shares would also be potential buyers in the after-market. As a result, trading volume should be higher for subscribe IPO on the first day of trading. This leads to the following hypothesis:

H2: IPOs Rated Subscribe Experience Higher Listing Day Trading Volumes

Further, if buying activity is strong for subscribe IPOs on the first day of trading, then the first day closing price should be significantly higher, on average, thus leading to greater underpricing. That is, there are two competing hypotheses about underpricing. But we expect the latter effect to prevail. This leads to the following hypothesis:

H3: IPOs Rated Subscribe Experience Higher Underpricing

Finally, if analyst recommendations are indicators of long-term performance, then subscribe IPOs should have higher liquidity in the long-run. Brennan and Subrahmanyan (1995) and Brennan and Tamarowski (2000) suggest that an increase in analyst coverage improves liquidity.

This relation stems from their argument that greater competition between informed traders reduces the asymmetric information component of the bid-ask spread. Following on these lines, Irvine (2003) examines trading volume, quoted spreads, and institutional ownership in the pre and post period of initiation of coverage. He finds that liquidity improves following coverage initiation and that the more positive the analyst's initial recommendation, the greater the liquidity improvement. Strong buy recommendations result in more liquidity than less aggressive buy, hold or sell recommendations. The stronger the initial recommendation the stronger is the relation between underpricing and the subsequent liquidity improvement. In line with the above, we expect positive recommendations to result in greater liquidity.

H4: IPOs rated Subscribe Experience Better Liquidity in the Long Run

As pointed out earlier, Investment Bankers often recruit more co-managers with the objective of purchasing coverage from these firms. If independent analyst coverage is available free of cost, then we would expect syndicate size to fall as the extent of coverage increases, ceteris paribus. This leads to the next hypothesis:

H5: The size of the investment bank syndicate and extent of analyst coverage are inversely related.

Ritter (1991) and Loughran and Ritter (1995) were among the first to document the long run underperformance of IPOs. Ritter (1991) attributes the underperformance to investors' overoptimism about the earnings potential of young firms. Daniel et al. (1998) propose that overreaction is due to investor overconfidence about the precision of their private information, and when this overvaluation is subsequently corrected, the overvalued securities experience poor long-run performance.

We expect information production by analysts before the IPO to mitigate investor behavioral biases and reduce IPO overvaluation in that investors can follow analyst prescriptions. In line with this expectation, we have the following hypothesis:

H6: IPOs rated Subscribe have better long term performance compared to IPOs rated Avoid.

2. Data and Sample

Our dataset consists of 767 brokerage analyst recommendations for 256 companies that went public between 2001 and 2010. A large fraction of firms in our sample are concentrated in the 2006-2010 period because analyst activity increased substantially in 2006 on account of heightened capital flows to India.

Recommendations of IPOs come from smaller, boutique brokerages/investment banks in India like Angel Broking, Keynote Advisory Services, HDFC Securities, Reliance Money, India Infoline. The top investment banks that act as lead managers to most IPOs (e.g. ICICI Securities, Enam Financial, Edelweiss Capital, Kotak Mahindra Capital) initiate coverage after an IPO gets listed. The same is true of multinationals like Deutsche Research, ABN AMRO Research, J P Morgan and Citigroup. Some of the Indian investment banks like Enam and Edelweiss infrequently provide recommendations before the listing when they are not lead-managing the IPO. That is, the brokerage recommendations are from unaffiliated companies that have carved out a niche for themselves in research. But this does not imply that they are independent.

Brokerages provide subscribe/neutral/avoid recommendation to an IPO based on their analysis of price appreciation potential (without committing to any timeframe). Since an IPO is covered by several brokerages that may assign different recommendation to the same IPO it becomes necessary to come up with a consensus recommendation. We assigned a numerical score of 3 for subscribe recommendation, 2 to neutral recommendation and 1 to avoid recommendation. The final score of an IPO is the weighted average of scores of all recommendations.

Final Score = No. of Subscribe Recommendations * 3 + No. of Neutral Recommendations * 2 + No. of Avoid Recommendations * 1

All IPOs with a score above the median are classified subscribe and those below the median are classified as avoid.

The methodology we have followed is inherently biased towards larger firms that attract many analysts. It appears that a company with 2 "buy" recommendations can end up with a lower score than a company that gets 8 "avoid" recommendations.

Two observations are in order:

1. Smaller firms usually attract smaller number of less reputed brokerages. So we may not want to weight them as much as larger firms. Further, smaller firms invariably end up with an "avoid" or a "neutral" recommendation. However, they have a chance to be classified as "consensus buy or neutral" only if they primarily get buy and/or neutral recommendations.

2. Larger companies that attract recommendations from several brokerages mostly get higher "buy" and "neutral" recommendations than "avoid" recommendations. Our methodology implicitly gives importance to "buy" recommendations given to these firms.

It would be hard to establish the reputation of analysts as opposed to underwriters because neither their market share nor their quality is measurable. Analyst rankings are not available in India. On balance, the methodology seems to be reasonable.

In addition to brokerages, non brokerages like financial dailies and investment journals also cover IPOs. Since our objective is to study the impact of unaffiliated and independent analysts in addition to brokerage analyst recommendations that are likely to be biased on account of business relationships we collected recommendations by Capital Market, a leading financial/investment journal, for 212 IPOs and Business Line, a leading financial newspaper, for 193 IPOs for the period 2006-2010[2]. Our data on brokerage recommendations comes from the ISI Emerging Markets Database, which provides comprehensive information on recommendations made by all major brokerages. We collected the data on press recommendations from their individual websites as well as triangulated it with other sources like chittorgarh.com, a financial website dedicated for IPOs.

Capital Market provides a numerical score to an IPO on a scale of 100. The median score for all IPOs is 43. The industry practice in India is to assign a "subscribe" rating if the score is higher than 43. Scores below 43 are rated "avoid" while those exactly 43 are rated "neutral".

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[2] Capital market and Business Line started providing recommendations only in 2007 and 2006 respectively. Capital market is an important source of information for Investment banks, Issuers and Investors. Investment banks justify the issue price (PE multiple) on the basis of industry PE reported in Capital market.

Business Line provides invest/avoid recommendations. The IPOs in the three sub samples overlap to a great extent.

Firm and offer characteristics are taken from IPO draft prospectuses, Centre for Monitoring Indian Economy's Prowess database, and company websites. We obtained stock price and index return information from the websites of the Bombay Stock Exchange and National Stock Exchange of India, the Capitaline Database and supplemented these with the information available on websites dedicated to IPO information like chittorgarh.com. Company and industry accounting and financial information such as P/E multiple, Return on Net Worth, Net Asset Value and EPS were obtained from IPO draft prospectuses.

Table 1 presents the summary statistics of brokerage and press recommendations. As shown in Panel A, there are a total of 767 brokerage recommendations for the 256 IPOs of which 383 (62%) are subscribe while only 210 (34%) are avoid. The remaining 4% are neutral. The maximum number of subscribe recommendations for a given IPO is 11 while that for avoid recommendations is 8 (Panel B). On average, each IPO has just under two subscribe recommendations and just over one avoid recommendation. The summary of consensus recommendation is in Panel C. In Panel D, the average score given to an IPO by Capital Market is 39.47 (median 43). The maximum score given is 53 while the minimum is 10. Panel E shows the recommendations by Business Line. Of the 182 firms that we have data for, 58% have subscribe recommendations while the remaining 42% are classified as avoid. Finally, in Panel F, we examine the correlation between the brokerage and Capital Market recommendations. The correlation coefficient is -0.04 and insignificant, so we conclude that there is no significant difference in brokerage and Capital Market recommendations.

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2.1. Univariate Comparisons of Firm, Offer, Corporate Governance characteristics

Table 2 presents the summary statistics of firm characteristics. In Panel A, we show the offer characteristics. On average, INR 4.18 billion in proceeds is raised at the IPO (median INR 1.05 billion). Firms with subscribe rating raise more money in the IPO than those rated avoid (mean INR 6.79b vs. INR 1.31b, median INR 1.46b vs. INR 0.80b). This difference is highly significant at the 1% level based on a t-test and Wilcoxon rank sum test. When the proceeds are broken up into its individual components - offer price and number of shares offered - firms with

subscribe ratings continue to dominate. On average, 31.37 million shares are offered. Firms with a "subscribe" rating offer significantly more shares than those with an avoid rating (mean of 44 million versus 17.47 million, median of 8.61 million versus 6.47 million). While the average offer price is INR 195.16 overall, for subscribe rated firms it is INR 237 36 (median INR 168.5) while that for avoid rated firms is only INR 148.15 (median INR 108). Again, the difference is statistically significant.

The average number of lead, co-lead and co-managers for subscribe recommendations is 2.89 while that for avoid recommendations is 1.85. This difference is statistically significant at the 1% level. The difference in medians is also significant although the median number of underwriters is 2 in both cases. According to the existing literature, as the number of deal managers is increased, the number of analysts following the stock also increases soon after the IPO. However, Bradley et al. (2008) find that in the subsequent eleven months, there is no relation between the number of analysts and the number of deal managers. Finally, subscribe recommendations are more likely to be assigned to VC backed firms. This result is not surprising since VCs bring certification quality to an IPO (Megginson and Weiss (1991)).

Surprisingly, IPOs with a subscribe rating are priced at a relative P/E multiple (measured as the ratio of issue PE at the offer price and industry average PE multiple) of 4.43 whereas avoid IPOs, on average, are priced at the industry P/E multiple. In other words, IPOs with subscribe recommendation are priced at a premium of 343% to other peer companies whereas IPOs with an avoid recommendation are neither under nor overvalued. The difference is not statistically significant, although economically significant.

Moving next to the firm characteristics (Panel B), sales are significantly higher for firms rated favorably (INR 4.63b) than firms rated poorly (INR 1.97b). Based on the median, EBITDA is also higher for subscribe IPOs (INR 278.80b) than avoid ones (INR 125.21b). Net Income is also significantly higher for positive recommendations at the 5% level. There is no significant difference in the two groups based on debt-equity ratio, operating cash flows, earnings per share, return on net worth and net asset value. There is also evidence that governance mechanisms influence analyst recommendations. The numbers of board of directors, non-executive directors, and executive directors (based on the mean) are all significantly higher for positive analyst recommendations. Thus, monitoring by the board is considered important by analysts.

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2.2.*Variable Construction*

The Appendix provides a summary of the key variables used in our analysis and the data sources. We briefly discuss some of the important variables here.

Underpricing: We measure underpricing as the percentage return from the SDC offer price to the first closing price on the Bombay Stock Exchange.

IPO Relative Valuation: Investment bankers set the issue price vis-à-vis industry multiples. In India, issuers set the IPO Price/Earnings multiple by examining P/E multiples of peer companies. We use Company P/E over Industry P/E as a measure of under or over valuation.

IPO Size: is measured as the natural log of net proceeds of the issue.

Underwriter Reputation: To measure the quality of the investment banker we use Thomson One Banker Rankings. The top ten investment banks that account for much of capital raised are considered reputed; otherwise not.

Subscription: In India, each issue is offered to three categories of investors viz. retail, non institutional and QIBs (Qualified Institutional Buyer). We use the subscription levels for each of these categories.

Firm Size: is measured as the natural log of Total Assets just before the IPO.

Return on Equity: is measured by the ratio of Net Income and Book Value of Equity just before the IPO.

Issue Method: is a dummy variable which equals 1 if IPO is book built; zero otherwise.

Amihud Illiquidity Ratio: Amihud Illiquidity measure is computed as $1/D*[|R|/(P*Vol)]$.

Group Affiliation is a dummy variable which equals 1 if the issuing firm is affiliated to a business group; otherwise not.

3. Empirical Results

We begin our empirical analysis by establishing the determinants of analyst recommendations. We then examine the impact of recommendations on investor subscription, underpricing, listing day trading volume, long run liquidity and syndicate size. Finally, we examine the long term performance of IPOs in the next section.

3.1. Determinants of Analyst Recommendations

To provide a recommendation, analysts undertake a qualitative analysis of the firm's strategy, its business environment, state of competition, regulation and such other factors apart from a financial analysis, which includes a comparison of the IPO's Price-Earnings multiple vis-à-vis the average industry multiple[3]. We would expect recommendations to be correlated with firm and IPO related variables.

3.1.1. Logistic Regression Results

To understand the determinants of analyst recommendations we performed three sets of binomial logistic regressions with Business Line, Capital Market, and Brokerage recommendation with the recommendation (i.e. subscribe/avoid) as the dependent variable. The independent and control variables include lead manager (underwriter) reputation, firm size (total assets), return on equity, Net Asset Value per share, relative P/E multiple of the IPO, issue size and issue mechanism. The results are reported in Table 3.

In Model 1, we regress Business Line recommendations, a categorical variable that takes a value of 1 if the IPO is given a "subscribe" rating; 0 if given an "avoid" rating. In Model 2 and Model 3 we replace Business Line recommendations with Capital Market recommendations and Consensus Brokerage Recommendations.

In the first regression the coefficient for lead manager reputation is strongly negatively correlated while the other variables are not related. We would expect IPOs underwritten by more reputed managers to get a positive recommendation. We find that the opposite is true. This can happen if better quality issues underwritten by more reputed underwriters are aggressively priced vis-à-vis industry peers. This is indeed the case. The IPOs underwritten by less reputed underwriters have a relative P/E multiple of 1.32 on an average whereas those underwritten by more reputed underwriters have an average relative P/E multiple of 5.06. That is, IPOs underwritten reputed investment banks were priced at a premium of 400% to the prevailing industry P/E multiple whereas the less reputed ones were priced closer to the prevailing industry average.

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[3] IPO P/E multiple is measured as the Issue Price/Most recent EPS. It may also be calculated using next year EPS.

In the second regression we replaced Business Line with Capital Market recommendations. The coefficient for Firm size is strongly negatively related and that for issue size (issue proceeds) is strongly positively related. The other variables are not related.

In the third regression we replaced Capital Market recommendations with brokerage recommendations. Again, issue size is strongly positively related to recommendation. That is, bigger IPOs get better rating.

Model 1 has a Nagelkerke R^2 of 0.25 and Cox & Snell R^2 of 0.19. Our model correctly classifies 70% of the IPOs and is highly significant. Model 3 is also significant but correctly classifies only 52% of IPOs.

Overall, it appears that analysts do not o provide a recommendation mechanically on the basis of firm or IPO characteristics.

——————— INSERT TABLE 3 HERE ———————

3.2. Investor Subscription

In India, each issue is offered to three categories of investors viz. retail, non institutional and QIBs (Qualified Institutional Buyer). The Indian securities law prescribes that (a) Not less than 35% of the net offer to the public shall be available for allocation to retail individual investors; (b) Not less than 15% of the net offer to the public shall be available for allocation to non-institutional investors i.e. investors other than retail individual investors and Qualified Institutional Buyers; (c) Not more than 50% of the net offer to the public shall be available for allocation to Qualified Institutional Buyers[4]. If QIBs apply for exactly the same number of shares allotted to them the issue would have a subscription of 1x in the QIB category. Thus, a QIB subscription of 10x implies oversubscription of 9x in the QIB category. The same applies to other categories.

3.2.1. Univariate Comparison

As shown in Table 4, QIB subscription levels are significantly higher (at the 1% level) for subscribe brokerage recommendations (29.17) compared to avoid recommendations (23.51) (Panel A). The results of the t-test of difference in means and Wilcoxon test of difference in

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[4] The rule has since changed. It is now mandatory to allot 60% of the net offer to QIBs, 30% to retail investors and 10% to Non Institutional Investors.

medians can be seen in Table 5. The median is also significantly higher at the 1% level. For completion, we include the neutral category. Non-Institutional subscription levels are also higher for subscribe IPOs (34.27) as compared to avoid IPOs (24.09). As regards retail investors, subscribe IPOs once again have higher subscription levels although the difference is much smaller and insignificant.

There is also some evidence that subscription levels are higher for positive recommendations based on Capital Market recommendations (Panel B). Finally, we examine Business Line recommendations. Subscription levels are significantly higher for QIB, Non-Institutional, and Retail based on differences in mean and median. Thus, it appears that a larger group of investors in an IPO are influenced by Business Line recommendations.

──────── INSERT TABLES 4 AND TABLE 5 HERE ────────

3.2.2. Ordinary Least Squares Regression Results

In order to understand the determinants of Retail and QIB (Qualified Institutional Buyers) subscriptions we performed six OLS regressions of subscription in the two investor categories against recommendations from the three sources and a range of independent variables. Table 6 reports the results. We have reported only four for the sake of brevity[5].

In the first regression the dependent variable is the retail subscription. The independent and control variables are Business Line recommendation and several firm/IPO related variables like firm size, issue size, and lead manager reputation. Our main finding is that Business Line Recommendation and offer size are the determinants of retail subscription[6]. The coefficient for business line recommendation is positive and highly statistically significant indicating that a positive recommendation from Business Line leads to a higher subscription in the retail investor category. Strangely, the coefficient for issue size is negative. We would expect retail investors to subscribe more to larger issues if they take issue size as proxy for quality or if they believe that their chances of getting an allotment is higher in large size issues. Our results suggest the

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[5] Two regressions with retail subscription as the independent variable were not statistically significant.

[6] We also regressed retail subscription with Brokerage consensus recommendation and Capital market recommendation as independent variables. None of the coefficients are statistically significant and the Adj. R^2 is close to zero. We have not reported the results for the sake of brevity.

opposite. This can happen if smaller issues are priced more conservatively vis-à-vis industry peers whereas larger issues are not, because of which retail investors may subscribe more to smaller IPOs.

In the next three regressions the dependent variable is the subscription in the QIB category. We replace recommendations from the three sources in the three regressions. In the second regression the coefficients for brokerage recommendation, firm size and Net Asset Value are positive and significant; in the third regression the coefficients for Business Line recommendation and lead manager reputation are positive and significant and in the fourth regression the coefficients for Capital Market recommendations and Net Asset Value are positive and significant.

Overall, we can conclude that recommendations explain a large part of investor subscription that cannot be explained by other variables like firm size or profitability or issue mechanism. This supports our first hypothesis.

———— INSERT TABLE 6 HERE ————

3.3. Underpricing

IPOs with subscribe recommendations uniformly have higher levels of underpricing regardless of the source of recommendation. On average, the underpricing for subscribe IPOs ranges from 22%-30% depending on the source of recommendation. Avoid IPOs, in contrast, experience lower underpricing ranging from 13%-20%. We analyze the determinants of underpricing using a multivariate OLS regression model. The dependent variable is underpricing measured as the offer-to-first day close return on the Bombay Stock Exchange. The independent and control variables are analyst recommendation, retail and QIB subscription, underwriter reputation, group affiliation, and several other firm/IPO related variables like firm size, IPO size, ROE, and Net Asset Value. The results are reported in Table 7.

We estimated three sets of regressions. The first regression considers Business Line recommendations and the other independent variables. The coefficient for retail subscription is statistically significant and positive and that for issue method (Book Built or Fixed Price) is significant and negative. The former confirms the notion that investor subscription and hence unmet demand for an IPO drives underpricing. The second confirms the notion that book built offers are less underpriced than fixed price offers. The other variables are not significant.

In the second regression we replaced Business Line recommendations with Capital Market recommendations as proxy for analyst recommendation. Again, retail/QIB subscription and issue method are strongly related to underpricing. The coefficient for Capital Market recommendation is negative indicating that an improvement in Capital Market score results in *lower* underpricing. This supports the hypothesis that analyst recommendation could result in lower underpricing.

In the third regression we replaced Capital Market recommendations with brokerage recommendations. We find that the coefficients for retail subscription and brokerage recommendations are significant and positive and that for Total Assets (proxy for firm size) is negative. Our analysis supports both the hypotheses on underpricing. That is, Capital Market recommendations result in lower underpricing whereas brokerage recommendations result in higher underpricing. This can be explained on the basis of their differential impact on investor subscription.

That firm size is negatively related to underpricing seems counterintuitive. We would expect investors to subscribe more to IPOs by bigger firms and drive up underpricing. Our analysis does not support this notion. On the contrary, smaller firms are more heavily underpriced. The winner's curse hypothesis put forth by Rock (1986) argues that underpricing is used to compensate uninformed investors for adverse selection. We expect this to be an issue if the ex-ante information asymmetry is higher. Smaller issues are more likely to be speculative issues by start-up firms. For this reason our result is consistent with the expectation that smaller issues are likely to be more highly underpriced.

──────── INSERT TABLE 7 HERE ────────

3.4. Trading Volume

As pointed out earlier we expect analyst recommendations and retail subscription to explain a large part of listing day trading volume. We find that a median Subscribe IPO experiences a trading volume of 13m shares on the listing day whereas an avoid IPO experiences

a trading volume of 9.4m shares[7]. We analyze the determinants of trading volume using a multivariate regression model. The dependent variable is the natural log of listing day trading volume. The independent variables are retail and QIB subscription, recommendation by the three sources, and several firm/IPO related variables. The results are reported in Table 8.

The coefficient for Business Line recommendation is highly significant but has a negative sign. That is, IPOs rated "subscribe" trade less. The coefficient for brokerage recommendation has a positive sign (and is highly significant) in line with our hypothesis that IPOs rated "subscribe" trade more on the listing day. Other variables like lead manager reputation, IPO size and firm profitability (ROE) are also related although the t statistics are lower.

———— INSERT TABLE 8 HERE ————

3.5. Liquidity

We next examine the impact of analyst recommendations on liquidity of the IPO firms' shares over the long horizon (end of 2010). Following Amihud (2002) we measure liquidity using the Amihud Illiquidity Ratio, which is defined as:

$$\text{Amihud Illiquidity ratio} = \sum_{j=1}^{d_t} \text{Ab}(r_{i,j}) / dVol_{i,j}$$

where $\text{Ab}(r_{i,j})$ is the absolute value of daily return and $dVol_{i,j}$ is the Rupee volume.

We regressed Amihud's illiquidity ratio on a range of variables like Analyst recommendation (proxied by Capital market recommendation), underwriter reputation, IPO size, firm size and issue mechanism (book built vs. fixed price). The coefficients are reported in Table 9. We find that the coefficient for IPO size is positive and statistically significant whereas that for underwriter reputation is negative and significant. That is, the more reputed the underwriter, the better is the liquidity and the opposite is true of larger IPOs. The coefficients for other variables are insignificant. Our model does not support the hypothesis that analyst recommendation improves liquidity in the long run.

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[7] Using brokerage recommendations

We thank Raghu Rau for helpful comments on an earlier draft

─────── INSERT TABLE 9 HERE ───────

3.6. Syndicate Size

Prior research shows that Investment Banks recruit managers with the objective of purchasing analyst coverage from these co-managers. If analyst coverage is available from unaffiliated and independent sources both before and after the IPO we would expect syndicate size to reduce if procuring future analyst coverage is the main motive. In order to analyze this possibility we performed an OLS regression with syndicate size as the dependent variable. The dependent variable is the number of managers and co-managers of an IPO. The independent variables are extent of coverage (number of brokerage analysts covering an IPO), lead manager reputation, firm size, issue size and issue mechanism (book built versus fixed price offers). Our analysis suggests that lead manager reputation is the only significant variable with a positive coefficient. That is, reputed lead managers use *more* co-managers, not less. In our model neither firm size nor issue size nor the extent of coverage is statistically significant. Two explanations can be given to the fact that the extent of current coverage has little bearing on the syndicate size: a) Co-Managers provide better quality, future, coverage unavailable from third party/independent sources and b) considerations other than coverage (e.g. distribution reach, future capital raising) determine the size of the syndicate. Our model does not support the hypothesis that analyst coverage and syndicate size are inversely related.

─────── INSERT TABLE 10 HERE ───────

4. Long Term Performance

We next analyze the long-run return performance (from the day of listing through December 2010) of IPOs with Subscribe and Avoid recommendation. In Table 8 we report the long run return performance statistics for our data-set. We use both the Buy-and-Hold Excess Return (BHER) and the Cumulative Abnormal Return (CAR) measures for our long-run performance analysis. These are the standard metrics used in the IPO literature and represent different ways of defining the post-listing, long-term, return: BHER is the risk-adjusted return based on buying at the beginning of the period and selling it at the end, taking into account any intervening distributions, while CAR is the cumulative abnormal return assuming compounding in each

period (see, for example, Brav, Geczy, and Gompers, 2000). A more formal representation is as follows:

$$CARi = \Sigma_{t=1toT} (R_{it} - R_{mt})$$

$$BHER_i = \Pi_{t=1toT} (1+R_{it}) - \Pi_{t=1toT} (1+R_{mt})$$

Monthly benchmark adjusted returns are calculated as the monthly raw return on a stock minus the monthly benchmark return for the corresponding period. To calculate market adjusted returns we have used the National Stock Exchange 50 Stock Index (Nifty) as market proxy. *BHER* is the Buy-and-Hold Excess Return*; R_{it}* = the return of firm *i* and R_{mt} is the market bench mark return (NSE 50 Index return) in period t; the horizon date *T* = December 2010.

Table 11 shows that IPOs rated subscribe produce substantial cumulative abnormal returns ranging from 15% to 27% from the date of listing through December 2010 depending on the source of recommendation. IPOs rated Avoid, in contrast, produce mostly statistically insignificant, negative returns. In panel A we report CARs and BHERs for IPOs rated Subscribe and Avoid by brokerages. A subscribe IPO, on average, generates a CAR of 16.22%, which is statistically significant whereas an Avoid IPO generates a statistically insignificant CAR of 1.5%. Avoid IPOs generate a negative BHER of 0.15%, which is statistically significant. Subscribe IPOs also generate a negative BHER but close to 0%. In Panel B we report CARs and BHERs of IPOs rated by Capital Market. Again, subscribe IPOs generate a substantial CAR of 27.5% whereas Avoid IPOs generate an insignificant 1.2%. Subscribe IPOs perform better than Avoid IPOs on the basis of BHER too. In Panel C we report the CARs and BHERs of IPOs rated by Business Line. Again, subscribe IPOs generate a substantial CAR of 15%. But so do avoid IPOs. Subscribe IPOs perform better than avoid IPOs on the basis of BHER.

──────── INSERT TABLE 11 HERE────────

In Table 12 we report CARs and BHERs for 1, 2 and 3 year time horizons. We find that IPOs rated subscribe produce statistically significant, positive cumulative abnormal returns over a 3 year horizon. IPOs rated avoid produce highly negative, statistically significant, CARs over the 1 to 3 year horizon. Overall, it appears that both Brokerages and Business Line recommendations have the best discriminatory power.

In Panel A we report the CARs and BHERs of IPOs rated by Business Line. Subscribe IPOs produce a statistically significant CAR of 17% whereas avoid IPOs produce a statistically significant, negative CAR of 28%. Avoid IPOs produce statistically significant, negative, BHERs over the 2 year horizon whereas Subscribe IPOs less negative returns.

In Panel B we report CARs and BHERs for IPOs rated by Capital Market. Again, subscribe IPOs produce a statistically significant CAR of 22% over the 3 year horizon whereas avoid IPOs produce insignificantly positive returns. The story is pretty much the same for BHERs.

Finally, we report CARs and BHERs for IPOs rated by brokerages in Panel C. The results are in line with the above findings. Our analysis supports our hypothesis `IPOs rated Subscribe have better long term performance compared to IPOs rated Avoid`.

It is to be noted that underperforming a benchmark index does not suggest that investors lost money. The Bombay Stock Exchange Sensitive Index (Sensex) yielded 1.5-2% per month during 2007-2010. This translates into an annual return of 18-24%. So it is possible for individual investors to realize high returns if they do not beat the index.

———— INSERT TABLE 12 HERE————

5. Concluding Remarks

While much has been written on the value of analyst recommendations after a firm gets listed, very little research has been done on analyst recommendations before the IPO. To our knowledge, this is the first paper to do so. Other forms of IPO certification like IPO grading or group affiliation or auditor quality suffer from the limitation that these are not price related nor do they convey any information on the price appreciation potential. Analyst recommendations, in contrast, are price related and useful for investors. We find that analyst recommendations can explain the dispersion in subscription levels, underpricing, first day trading volume and long term performance of IPO firms. Strangely, IPOs rated subscribe are priced at a premium of 343% to the prevailing average industry P/E multiple (Panel A, Table 2). Yet, they earn substantial returns over a three year horizon. Overall, it seems independent analyst recommendations convey

valuable information relating to subscription, underpricing, trading volume and long term performance.

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Appendix: Construction of Variables

Variable	Data Source
Brokerage Recommendation	ISI Emerging Markets Database
Business Line Recommendation	Business Line
Capital Market recommendation	Capital Market
Stock Price	Bombay Stock Exchange
Trading Volume	Bombay Stock Exchange
Index Returns	Bombay Stock Exchange
Underpricing	SDC
IPO Relative Valuation	IPO Prospectus, Capital Market (journal)
IPO Size	SDC, Issue Prospectus
Underwriter Rankings	Thomson ONE
Subscription	Company Website, Center for Monitoring Indian Economy IPO Database, Chittorgarh.com
Firm Size	IPO Prospectus
Return on Equity	IPO Prospectus
Issue Method	SDC, CMIE
Net Asset Value	IPO Prospectus
Group Affiliation	Company Website

Table 1: Descriptive Statistics

Panel A: Brokerage Recommendations

This panel reports the details of brokerage recommendations of IPOs in the sample.

Number of Firms	257
Number of Recommendations	703
Total Number of Subscribe Recommendations	454
Total Number of Avoid recommendations	221
Total Number of Neutral recommendation	28

Panel B: Brokerage Recommendations Summary Statistics

This panel reports the summary statistics of brokerage recommendations of IPOs in the sample.

	Total # Subscribe	Total # Neutral	Total # Avoid
Mean	1.78	0.11	0.87
Median	1.0	0.0	1.0
Maximum	11.0	3.0	8.0

Panel C: Final Classification Based on Consensus

No of Avoid IPOs	127
No. of Neutral IPOs	6
No. of Subscribe IPOs	124

Panel D: Non Brokerage (Capital Market) Recommendations Summary Statistics

This panel reports the score given by Capital Market, a widely circulated financial magazine, to an IPO on a scale of 100.

No of Firms	197
No. of Avoid	85
No. of Neutral Recommendations	15
No. of Subscribe Recommendations	97
Minimum Score	10
Maximum Score	53
Mean Score	39.47
Median Score	43

Panel E: Non Brokerage (Business Line) Recommendations Summary Statistics

This panel reports the recommendation given by Business Line, a widely circulated financial daily to an IPO

Number of Firms	179
Number of Subscribe Recommendations	73
Number of Avoid recommendations	106
Number of Neutral recommendations	0

Panel F: Correlation between Brokerage and Capital Market Recommendations

	Brokerage	Capital Market
Brokerage Score	1.0	
Capital Market	-0.04	1.0

p-value of correlation = 0.547

Table 2: Descriptive Statistics: Offer and Firm Characteristics

	Subscribe		Avoid		Difference (p-values)			
	Mean	Median	Mean	Median	Mean	Median	t	Wilcoxon
Panel A: Offer Characteristics								
Shares Offered (m)	31.37	7.38	44.00	8.61	17.47	6.47	0.019	0.024
Net Proceeds ($m)	4180.26	1050.15	6788.32	1460.80	1308.09	798	0.004	<0.001
Offer Price	195.16	130	237.36	168.5	148.15	108	0.002	0.002
Number of Lead, Co-Lead & Co-Managers	2.40	2	2.89	2	1.85	2	<0.001	0.002
Company PE over Industry PE	4.43	0.81	1.0	1.0	3.43	0.19	0.37	0.30
Panel B: Firm Characteristics								
Sales (INR million)	3335.64	1011.08	4634.9	1320.80	1965.2	791.7	0.054	0.046
Debt-Equity ratio	1.08	0.88	1.09	1.04	1.06	0.76	0.929	0.244
EBITDA (INR million)	1493.81	174.66	1093.35	278.8	1910.07	125.21	0.604	0.003
Net Income (INR million)	449.01	90.48	677.09	132.28	202.69	62.13	0.04	0.008
Operating Cash Flows (INR million)	879.79	13.83	702.91	13.66	1088.37	15.78	0.81	0.516
EPS	11.39	7.84	12.93	8.5	9.72	6.97	0.213	0.144
Return on Net Worth	25.47	22.92	27.71	23.78	23.17	21.8	0.175	0.189
Net Assets Value (INR)	87.5	28.94	115.49	34.19	56.57	25.93	0.286	0.113
Panel C: Corporate Governance Characteristics								
Number of Board of Directors	7.74	7	8.19	8	7.24	7	0.009	0.027
Number of Independent Directors	3.64	3	3.78	4	3.49	3	0.198	0.264
Number of Non-Executive Directors	4.41	4	4.71	4	4.08	4	0.009	0.038
Number of Executive Directors	3.02	3	3.16	3	2.86	3	0.044	0.318
Promoters Shareholdings Pre-IPO (%)	62.33	62.05	64.2	63.8	60.22	60.7	0.131	0.116

Table 3: Logistic Regression of Recommendations

The dependent variable is a categorical variable set equal to 1 if the IPO gets a subscribe recommendation from Business Line (Model 1) or Capital market (Model 2) or Brokerages (Model 3); 0 otherwise (avoid). UW Rep is a dummy variable set equal to 1 if the IPO is lead managed by one of the top 10 Investment banks by market share, else zero; Total Assets is prior to the IPO and is collected from prospectus. ROE is the return on net worth prior to the IPO as reported in the prospectus. Net proceeds are obtained from SDC. Method is the dummy variable which equals 1 if IPO method is book built; zero otherwise. The Net Asset Value (NAV) per share prior to the IPO is taken from the prospectus. Relative PE is the ratio of Price-earnings multiple of the IPO (implied by the issue price) and the average industry P-E multiple taken from the draft prospectuses. The asterisk superscripts [*], [**], and [***] represent the 10%, 5%, and 1% two-tailed significance level, respectively. The standard errors are in the parentheses.

	Model 1	Model 2	Model 3
Constant	0.690	0.268	-3.232***
	(1.489)	1.353	0.983
UW Rep	-1.210**	-0.314	0.266
	0.574	0.524	0.363
ln Total Assets	-0.227	0.277*	-0.130
	(0.179)	0.163	0.117
ROE	0.007	-0.009	0.000
	0.012	0.010	0.007
NAV	0.000	0.001	0.003
	(0.01)	0.001	0.003
Relative PE	0.005	0.015	0.014
	(0.016)	0.017	0.019
ln proceeds	0.417	-0.580**	0.549***
	(0.277)	0.251	0.175
Issue Method	-1.687	-0.388	0.004
	(1.113)	0.708	0.620
-2 Log likelihood	137.85	169.35	178.07
Cox & Snell R^2	0.190	0.066	0.129
Nagelkerke R^2	0.254	0.088	0.173
P Value	0.001	0.264	0.006

Table 4: Impact of Analyst Recommendations on Subscription Levels

This table reports the subscription levels of IPOs with subscribe, neutral and avoid recommendations. Subscription refers to the number of times the issue is subscribed in each investor category. For example, a subscription level of 10 means the issue is oversubscribed nine times. Qualified Institutional Buyers (QIBs), Non-Institutional, and Retail are the three types of investors in an IPO.

Panel A: Brokerage Recommendations

	Avoid		Neutral		Subscribe		Avoid		Neutral		Subscribe	
	Mean	Median	Mean	Median	Mean	Median						
Subscription (x)												
QIB	23.51	3.14	3.55	2.82	29.17	6.22						
Non Institutional	24.09	4.9	2.65	1.07	34.27	3.74						
Retail	10.94	3.5	2.56	1.40	11.72	4.04						

Panel B: Capital Market Recommendations

	Avoid		Neutral		Subscribe	
	Mean	Median	Mean	Median	Mean	Median
Subscription (x)						
QIB	22.57	2.86	2.86	2.84	30.35	6.54
Non Institutional	26.38	5.42	3.07	1.56	32.37	3.63
Retail	10.16	3.19	2.35	1.00	12.67	4.45

Panel C: Business Line Recommendations

	Avoid		Subscribe	
	Mean	Median	Mean	Median
Subscription (x)				
QIB	11.65	1.49	43.33	16.35
Non Institutional	12.67	3.38	48.03	8.99
Retail	7.98	2.81	14.6	5.39

Table 5: Test of Differences in Mean and Median Subscription Between Subscribe, Neutral and Avoid IPOs

This table reports the difference in means between "subscribe", "neutral" and "Avoid" IPOs. The asterisk superscripts, *,**,***, represent statistical significance at the 10%, 5%, and 1% level respectively for the difference in means and medians. The comparison of means and medians are based on the independent t-test and Wilcoxon signed ranks test respectively.

Panel A: Brokerage Recommendations   **Panel B: Capital Market Recommendations**

	Difference Subscribe-Avoid				Difference Subscribe-Avoid			
	Mean	t	Median	Wilcoxon	Mean	t	Median	Wilcoxon
Subscription (x)								
QIB	22.89	3.38***	-4.68	-2.85***	7.77	2.27**	3.67	-0.97
Non Institutional	22.12	1.88*	1.43	-1.655*	5.99	1.34*	-1.79	-0.806
Retail	3.73	1.23	1.04	-0.44	2.51	1.5*	1.27	-1.74*

Panel C: Business Line Recommendations

	Difference Subscribe-Avoid			
	Mean	t	Median	Wilcoxon
Subscription (x)				
QIB	31.68	5.83***	14.83	-3.925***
Non Institutional	35.36	4.94***	5.61	-2.195*
Retail	6.62	2.96**	11.8	-2.043**

We thank Raghu Rau for helpful comments on an earlier draft

Table 6: OLS Regression Results of Retail and Institutional Subscriptions

The dependent variable is the subscription in Retail and QIB categories. Business Line Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Business Line; zero (avoid) otherwise. Brokerage Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Brokerages; zero (avoid) otherwise. Capital Market Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Capital Market; zero (avoid) otherwise. Lead manager reputation is a dummy variable set equal to 1 if the issue is lead managed by one of the top 10 lead managers (based on market share) in India, else zero. Total Assets is prior to the IPO and is collected from prospectus. ROE is the return on net worth prior to the IPO as reported in the prospectus. Net proceeds are obtained from SDC. Method is the dummy variable which equals 1 if IPO method is fixed-price; zero otherwise. The Net Asset Value per share prior to the IPO are taken from the prospectus. The asterisk superscripts [*], [**], and [***] represent the 10%, 5%, and 1% two-tailed significance level, respectively. The t-statistics are in the parentheses.

Dependent Variable	Retail	QIB	QIB	QIB
Intercept	12.197	-17.29	-20.454	-28.445
	(1.56)	(-1.05)	(-1.217)	(-1.562)
Business Line Recommend	0.228***		0.239***	
	(2.50)		(2.958)	
Brokerage Recommend		0.173**		
		(2.355)		
Capital Market Recommend				0.137*
				(1.778)
Lead Manager Reputation	0.052	-0.02	0.207*	0.208**
	(0.422)	(-0.286)	(1.884)	(1.927)
ln Total Assets	0.005	0.177*	0.137	0.103
	(0.044)	(1.857)	(1.281)	(0.930)
ROE	-0.057	0.018	0.003	0.052
	(-0.657)	(0.242)	(0.043)	(0.650)
ln Net Proceeds	-0.251*	0.04	0.039	0.120
	(-1.71)	(0.416)	(0.304)	(0.905)
Issue Method	0.062	-0.011	0.013	0.045
	(0.72)	(-0.148)	(0.171)	(0.568)
Net Asset Value	0.001	0.182***	0.119	0.138*
	(0.012)	(2.516)	(1.602)	(1.786)
Adj. R^2	0.01	0.07	0.226	0.162
P Value	0.2	0.003	0.000	0.000

Table 7: OLS Regression Results of Underpricing

The dependent variable is underpricing which is measured as the offer-to-close return on Bombay Stock Exchange. Business Line Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Business Line; zero (avoid) otherwise. Brokerage Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Brokerages; zero (avoid) otherwise. Capital Market Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Capital Market; zero (avoid) otherwise. Lead manager reputation is a dummy variable set equal to 1 if the issue is lead managed by one of the top 10 lead managers (based on market share) in India, else zero. Total Assets is prior to the IPO and is collected from prospectus. ROE is the return on net worth prior to the IPO as reported in the prospectus. Net proceeds are obtained from SDC. Method is the dummy variable which equals 1 if IPO method is fixed-price; zero otherwise. The Net Asset Value per share prior to the IPO are taken from the prospectus. The asterisk superscripts [*], [**], and [***] represent the 10%, 5%, and 1% two-tailed significance level, respectively. The t-statistics are in the parentheses.

Variables	Model 1	Model 2	Model 3
Intercept	53.709***	65.453***	49.896**
	(2.396)	(21.495)	(2.099)
Business Line Recommend	0.056		
	(0.701)		
Capital Market Recommend		-0.134**	
		(-1.955)	
Brokerage Recommend			0.125*
			(1.756)
Lead Manager Reputation	-0.046	-0.008	0.033
	(-0.443)	(-0.084)	(0.477)
ln Total Assets	-0.063	-0.045	-0.186**
	(-0.601)	(-0.463)	(-2.061)
ROE	-0.045	-0.059	-0.026
	(-0.602)	(-0.848)	(-0.371)
ln Net Proceeds	-0.060	-0.142	-0.094
	(-0.464)	(-1.171)	(-0.982)
Issue Method	-0.140**	-0.130**	0.056
	(-1.912)	(-1.909)	(0.806)
Net Asset Value	0.012	0.007	-0.049
	(0.163)	(0.102)	(-0.695)
Group affiliation	-0.027	0.014	-0.052
	(-0.361)	(0.199)	(-0.763)
Retail Subscription	0.509***	0.484***	.0303***
	(5.154)	(5.212)	(2.848)
QIB Subscription	0.129	0.180*	0.134
	(1.164)	(1.751)	(1.212)
Adj. R^2	0.358	0.376	0.202
P Value	0.000	0.000	0.000

Table 8: OLS Regression Results of Trading Volume

The dependent variable is natural log of Trading Volume, which is the number of shares traded on the listing day on BSE. Business Line Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Business Line (Model 1); zero (avoid) otherwise. Capital Market Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Capital Market; zero (avoid) otherwise (Model 2). Brokerage Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Brokerages; zero (avoid) otherwise (Model 3). Lead manager reputation is a dummy variable set equal to 1 if the issue is lead managed by one of the top 10 lead managers (based on market share) in India, else zero. Total Assets is prior to the IPO and is collected from prospectus. ROE is the return on net worth prior to the IPO as reported in the prospectus. Net proceeds are obtained from SDC. Method is the dummy variable which equals 1 if IPO method is fixed-price; zero otherwise. The Net Asset Value per share prior to the IPO are taken from the prospectus. The asterisk superscripts *, **, and *** represent the 10%, 5%, and 1% two-tailed significance level, respectively. The t-statistics are in the parentheses.

	Model 1	Model 2	Model 3
Intercept	15.929***	16.179***	14.183***
	(33.907)	(33.925)	(8.111)
Business Line Recommend	-0.237***		
	(-2.501)		
Capital Market Recommend		-0.108	
		(-1.283)	
Brokerage Recommend			0.210***
			(2.695)
Lead Manager Reputation	-0.283**	-.281*	0.015
	(-2.281)	(-2.399)	(0.202)
ln Total Assets	0.068	0.107	0.019
	(0.545)	(0.902)	(0.239)
ROE	-0.124	-0.158*	-0.002
	(-1.411)	(-1.835)	(-0.032)
ln Net Proceeds	0.353**	0.176	-0.077
	(2.325)	(1.176)	(-0.896)
Issue Method	0.022	0.014	0.121
	(0.257)	(0.162)	(1.574)
Net Asset Value	0.033	0.054	0.012
	(0.382)	(0.632)	(0.159)
Group affiliation	0.039	0.026	-0.074
	(0.445)	(0.308)	(-0.983)
Retail Subscription	-0.037	-0.081	0.066
	(-0.313)	(-0.702)	(0.629)
QIB Subscription	0.001	0.000	0.022
	(0.008)	(0.004)	(0.205)
Adj. R^2	0.10	0.043	0.030
P Value	0.008	0.931	0.128

We thank Raghu Rau for helpful comments on an earlier draft

Table 9: OLS Regression of Liquidity

The dependent variable is Amihud's illiquidity Ratio computed as $1/D*[|R|/(P*Vol)]$. Capital Market Recommend is a dummy variable which equals 1 if the IPO is recommended for subscription by Capital Market; zero (avoid) otherwise. Lead manager reputation is a dummy variable set equal to 1 if the issue is lead managed by one of the top 10 lead managers (based on market share) in India, else zero. Net proceeds are obtained from SDC. Total Assets is prior to the IPO and is collected from prospectus. Method is the dummy variable which equals 1 if IPO method is book built; zero otherwise.

Intercept	-0.210
	(-0.702)
Capital Market Recommend	0.100
	(1.278)
Lead Manager Reputation	-0.282***
	(-2.641)
ln IPO proceeds	0.324***
	(2.409)
Ln Total Assets	-0.053
	(-0.475)
Issue Mechanism	-0.003
	(-0.043)
Adj R^2	0.02
P Value	0.09

Table 10: OLS Regression Results of Syndicate size

The dependent variable is the syndicate size, which is the number of managers in the investment bank syndicate. The number of analysts that cover an IPO are from ISI Emerging Markets database. Lead manager reputation is a dummy variable set equal to 1 if the issue is lead managed by one of the top 10 lead managers (based on market share) in India, else zero. Total Assets is prior to the IPO and is collected from prospectus. Net proceeds are obtained from SDC. Method is the dummy variable which equals 1 if IPO method is fixed-price; zero otherwise. The asterisk superscripts *, **, and *** represent the 10%, 5%, and 1% two-tailed significance level, respectively. The t-statistics are in the parentheses.

Variables	
Intercept	0.369
	(0.528)
No of analysts	0.083
	(1.201)
Lead Manager Reputation	0.237***
	(3.469)
ln Total Assets	-0.065
	(-0.757)
ln Net Proceeds	0.128
	(1.474)
Issue Method	0.074
	(1.080)
Adj R^2	0.066
P Value	0.002

Table 11: Long Term Returns through December 2010

This table reports the CAR and BHER of "subscribe" and "avoid" IPOs from the date of listing through December 2010. The superscripts ***, **, and * represent significance at the 1%, 5% and 10% confidence level.

Panel A: Brokerage Recommendations

	Subscribe		Avoid	
	CAR	BHER	CAR	BHER
Min	(173.23)	(0.69)	(196.40)	(1.68)
Max	179.76	1.26	971.84	3.09
Mean	**16.2267*****	(0.048)	1.52	**(0.15)****
Median	17.27	(0.15)	(0.96)	(0.22)
Standard Dev.	63.44	0.36	139.89	0.60

Panel B: Capital Market Recommendations

	Subscribe		Avoid	
	CAR	BHER	CAR	BHER
Min	(166.10)	(1.21)	(214.05)	(6.80)
Max	634.06	1.65	243.59	3.09
Mean	**27.56*****	0.001	1.23	(0.23)
Median	8.23	(0.14)	1.46	(0.20)
Standard Dev.	98.85	0.47	89.15	0.96

Panel C: Business Line Recommendations

	Subscribe		Avoid	
	CAR	BHER	CAR	BHER
Min	(214.05)	(0.78)	(252.57)	(6.80)
Max	196.62	1.53	971.84	3.09
Mean	**15.07***	(0.02)	23.74*	(0.18)**
Median	8.23	(0.12)	6.02	(0.15)
Standard Dev.	80.51	0.40	145.44	0.89

Table 12: Long Term Returns

This panel displays the means and medians of CARs and BHERs of Subscribe and Avoid IPOs over a 3 year window. The asterisk superscripts *, **, ***, represent statistical significance at the 10%, 5%, and 1% level respectively.

	CAR			BHER		
	1 YEAR	**2 YEAR**	**3 YEAR**	**1 YEAR**	**2 YEAR**	**3 YEAR**
Business Line-Avoid						
Mean	**-21.29*****	9.64	**-28.40****	**-0.02*****	**-0.0065****	-0.0036
Median	-25.47	0.00	0.00	-0.02	-0.01	0.00
Business Line-Subscribe						
Mean	-4.19	4.31	**17.11****	0.07	0.10	0.01
Median	-2.68	0.00	0.00	0.19	0.088	0.00
Capital Market - Avoid						
Mean	**-25.00***	-3.12	6.10	**-0.02****	**-0.009*****	**-0.003****
Median	-6.55	0.00	0.00	-0.02	-0.007	0.00
Capital Market - Subscribe						
Mean	-5.1963	**15.25****	**22.02*****	-0.0054	**-0.0053*****	-0.0017
median	0.00	0.00	0.00	-0.0099	-0.0011	0.0000
Brokerage- Avoid						
Mean	**-20.51*****	**-13.18***	10.63	**-0.20*****	**-0.18****	**-0.22*****
Median	-23.38	0.00	0.00	-0.18	-0.31	-0.08
Brokerage- Subscribe						
Mean	-8.01	8.87	**12.13****	**0.13*****	**0.14*****	-0.10
Median	-7.62	0	0	-0.20	-0.049	0