Management Forecasts and IPO Performance

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ABSTRACT

We examine the association of voluntary disclosure and the performance of IPOs utilizing hand collected data on management earnings forecasts prepared for 1,600 listings on the London Stock Exchange (LSE), from 1981 to 2004. Given that forecasts are regulated by the listing requirements, further examination of the economic consequences of their disclosure are relevant for policy makers and various stock exchanges by informing discussion regarding litigation costs and possible changes of the requirements. This is particularly important in the context of recent changes initiated with the publication of the European Prospectus Directive. The results suggest that disclosing firms "left less money on the table" than their non-disclosing counterparts. The degree of underpricing is affected by the decision to disclose rather than by characteristics of the forecasts (bias, accuracy, and news conveyed by forecasts), auditors' reputation, and analysts' following. The results remain robust after controlling for sample selection bias utilizing Heckman's selection model. The statistical significance of the coefficient for inverse Mill's ratio (i.e. selection hazard) suggests that standard OLS estimates, without corrections for self-selection, tend to underestimate the impact of management forecasts on underpricing. In the long-run, managers with overly optimistic forecasts under-perform their more pessimistic counterparts. The overly optimistic managers, therefore, seem to be penalized once the actual earnings were announced, revealing the true characteristics of the forecasts. Overall, we interpret our results as direct evidence showing that managers can influence the degree of underpricing by reducing the extent of private information via voluntary disclosure of earnings forecasts.

Management Forecasts and IPO Performance

Introduction

Recently, there has been renewed interest in the provision of forward-looking financial information on primary markets on both sides of the Atlantic. In the US, the interest has been intensified by the further strengthening of the Safe Harbour Rule, instances of poor forecast accuracy by some financial analysts, and competition of leading stock exchanges via listing requirements. In Europe, important changes in this area were initiated with the publication of the European Prospectus Directive (2003/71/EC) in December 2003.[1] The intense pre-IPO scrutiny by investors, underwriters, and stock exchanges is increasingly shifting towards management's quality.

There seems to be a consensus in the theoretical literature on economic consequences, motives for, and credibility of voluntary management disclosure (see Diamond and Verrecchia, 1991; Verrecchia, 2001; Healey and Palepu, 2001). Voluntary disclosure, for example, reduces information asymmetry between managers and investors, increases stock liquidity, and improves analysts' following and, therefore, should reduce cost of capital. Furthermore, disclosure could reduce cost of capital by reducing non-diversifiable estimation risk (Barry and Brown, 1986; Botosan, 1997).

Teoh et al. (1998) found that US managers may influence IPO offer prices via earnings management. More recently, Easley and O'Hara (2004) show that differences in the composition of information between private and public information affect cost of capital and that firms can influence their cost of capital by choosing features like accounting

treatments, analyst coverage, and market microstructure. We examine whether managers can influence the degree of underpricing by disclosing earnings forecasts, in a sample of 1,600 IPOs from the London Stock Exchange (LSE). Further examination of the voluntary disclosure of management forecasts in IPO markets is important for both disclosure and IPO literature.[2] For the disclosure literature, we provide evidence on determinants and economic affects of management forecasts disclosed in IPO prospectuses which are not available for prospectuses prepared for listings on the US stock exchanges. The LSE is the biggest IPO market in Europe and one of the leading IPO markets in the world, nevertheless this is the first comprehensive study of the determinants of voluntary disclosure of management earnings forecasts and their association with IPO performance.[3] Given that forecasts are regulated by the listing requirements, further examination of the economic consequences of their disclosure are relevant for policy makers and various stock exchanges by informing discussion regarding litigation costs and possible changes of the requirements.[4] This is particularly important in the context of recent changes initiated with the publication of the European Prospectus Directive.

Previous literature on association of voluntary disclosure of management earnings forecasts and underpricing of IPOs failed to address two very important issues. First, voluntary disclosure of management earnings forecasts may be endogenously determined. Core (2001), emphasizes that firms' disclosure policies are endogenously determined by the same forces that share firms' governance structures and management incentives. The above mentioned endogeneity problems together with the measurement error problems

make this literature difficult but especially promising for future research. Second, if they decide to disclose their forecasts, managers may deliberately choose certain characteristics of the forecasts. Better understanding of the association of management forecasts and performance of IPOs, therefore, requires consideration of the sample selection bias and the interaction between the decision to make (disclose) forecasts and forecast characteristics.

Our results suggest that forecasters (29% of the sample firms) "left less money on the table" measured by the degree of underpricing. The results remain robust after controlling for forecast accuracy, forecast bias (optimists vs. pessimists), news conveyed in the forecasts (bad vs. good news), reputation of auditors that verified the accuracy of the forecasts, and analysts following of our sample firms. Since we can never directly observe the effect of voluntary disclosure of management forecasts on underpricing, we utilize Heckman's selection model to control for the probability that management would volunteer to disclose the forecasts. The statistical significance of the coefficient for inverse Mill's ratio (i.e. selection hazard) suggests that standard OLS estimates, without corrections for self-selection, tend to underestimate the impact of management forecasts on underpricing. In the long run, IPOs with overly optimistic forecasts underperform their counterparts with more cautious, pessimistic forecasts. The overly optimistic managers, therefore, seem to be penalized once actual earnings are announced, revealing the true characteristics of the forecasts. Overall, we interpret our results as direct evidence showing that managers can influence the degree of underpricing by reducing the extent of private information via voluntary disclosure of earnings forecasts.

The rest of the paper is organised as follows: The relevant literature is summarized and hypotheses are developed in section two. Data and methodology are presented in section three. In section four, we analyze the association of disclosure and the IPO performance underpricing. We conclude with a summary of results and suggestions for further research. Finally, relevant regulatory and institutional aspects of the UK primary market are summarized in annexes 1 and 2.

2. Previous literature and hypotheses

A. Management Earnings Forecasts Disclosure, Characteristics, and IPO Performance

Various IPO theories predicted, and numerous empirical studies confirmed, that underpricing increases with the level of uncertainty related to true value of company shares (see Ritter, 1984; Rock, 1986). Beatty and Ritter 1986, for example, report a positive association between number of disclosed uses of IPO proceeds listed in the prospectuses and gross issue proceeds (both used as proxies for ex ante uncertainty) and underpricing. Usage of earnings (historic and forecast) by individual investors and investment banks in the IPO market has also been well documented in the literature (Boatsman and Baskin, 1981; Beatty and Ritter, 1986; DeAngelo, 1990; Alford, 1992; Kim and Ritter 1999). Managers preparing for an issue of equity, therefore, have incentives to disclose forecasts in order to reduce information asymmetry and consequently cost of capital (Healeu and Palepu 1993; 1995; Myers and Majluf 1984; Merton 1987).

The empirical evidence on voluntary disclosure in the US's IPO market tends to concentrate on level and credibility of voluntary disclosures rather than disclosure of forward looking statements.[5] For example, Schrand and Verrecchia (2002) report a inverse relationship between the level of disclosure and the degree of underpricing, while Leone et al. (2003) report that smaller companies and those audited by smaller accounting firms provide more detailed disclosure. UK studies find evidence for pessimistic managers' forecasts in LSE prospectuses (Dev and Web 1972; Ferris and Hayes 1977; Keasy and McGuiness 1991). The empirical evidence from other British Commonwealth countries provides mixed evidence on the accuracy of management earnings forecasts but seems to be conclusive in suggesting that management earnings forecasts play an important role in the pricing of IPOs (Clarkson et al., 1992; Firth, 1997; 1998; Jelic et al., 2001, Henry et al., 2002; How and Yeo, 2001; Jog and McConomy, 2003).[6] Furthermore, evidence for Malaysia, Australia, and Canada suggest that forecasts' bias seems to be associated with the long term performance of IPOs (Jelic et al., 2001; How and Yeo, 2001; and Jog and McConomy, 2003). Elsewhere, Sun and Liu (2003) report pessimistic management forecasts disclosed in IPO prospectuses prepared for listing on the Shanghai Stock Exchange.

The above studies focus predominantly on association between forecast bias and underpricing while treating the bias (i.e. forecast error) as an exogenous variable. The managers, however, may deliberately choose forecast characteristics. For example, talent signaling and litigation hypotheses, both predict that managers would rather be cautious,

pessimistic, forecasters (Trueman 1986 and Ball and Shivakumar 2006, respectively).By setting themselves easier targets, managers increase the likelihood of more credible forecasts and lower litigation cost.[7] On the other hand, DeGeorge and Zechauser (1993) suggest the combined use of management earnings forecasts and retained ownership as signaling devices. Given that investors always expect some degree of earnings manipulation and/or forecast bias, and given stock prices penalties once the 'disappointing' future earnings become known, retained shares are held hostage against future earnings surprises. It is, however, worth noting that optimists could be either managers genuinely trying to convey information related to underlying value not captured by current earnings or managers trying to 'hype' stocks. If the disclosure revealed this improved value then long stock returns should not decline with the announcement of subsequent earnings. [8] In the case of 'hyping' the long returns are expected to decline once forecast accuracy/bias is verified.[9]

Previous studies explained when managers may have an incentive to convey good (Ross, 1979; Verrechia, 1983) or bad news in secondary markets (Skinner, 1994).[10] Ross, for example suggests that managers may believe that no forecast will be interpreted as bad news. Consequently, all managers except those with the worst news have an incentive to forecast. Disclosure of bad news could also be motivated by prospects of lawsuits by investors (Skinner, 1994). Whereas early studies (Penman, 1980; Waymire, 1984) find that good news forecasts are more likely, more recent studies from secondary markets, find that firms were equally likely to disclose bad and good news forecasts (Hirst et al., 2006).

The presence of intermediaries, such as auditors and financial analysts, has also been associated with forecast characteristics in the secondary markets. Datar et al. (1991), for example, suggest that high quality auditors may be selected by firms with less favorable information.[11] Titman and Trueman (1986), on the other hand, suggest that high quality auditors are more likely to be selected by firms with more favorable information than firms with less favorable information about the firms' value. While theory suggests that intermediaries (e.g. auditors) enhance the credibility of financial reports and forecasts empirical evidence has provided no conclusive evidence to substantiate it (Healey and Palepu, 2001). Finally, Botosan (1997) examines the possibility that the association between disclosure level and the cost of capital may be diluted for firms with a large analyst following. Analysts following may also affect forecast characteristics by providing additional scrutiny (Bamber and Cheon, 1998).

Better understanding of the association between management earnings forecasts and price performance requires consideration of the above mentioned factors and choices made by managers around IPOs. We will, therefore, examine possible interactions between the decision to make forecasts and forecast characteristics (forecast news, forecast accuracy, forecast bias) including auditors' reputation, and analysts following.[12]

B. Voluntary Disclosure of Management Earnings Forecast and Sample Selection Bias

The disclosure decision may be affected by the characteristics of IPOs (i.e. listing method and issue size), managerial ability to make accurate forecasts, and litigation costs.[13] For example, offers for sale where offer prices are fixed only a few weeks before trading and where shares are allocated on a non-discretionary basis to retail investors, are characterized with a higher degree of information asymmetry than other listing methods used by UK firms.[14] Size of the issue could also be an important determinant of forecasting behavior. Larger issues, for example, may create a significant increase in the book value of companies' assets, but no commensurate increase in operating profit in the following year, since these assets have not been employed long enough to generate operating profit. Companies with larger issues, therefore, may find it more difficult to accurately forecast profit.[15] On the other hand, the evidence from SOE suggests that larger firms tend to issue more forecasts given the greater cost of issuing forecasts for smaller firms (Hagerman and Ruland 1979).[16]

In addition to the choice of listing method and size of issue, the disclosure decision could be affected by a manager's ability to forecast accurately.[17] For example, it is well documented that profits of companies with a short operating history are likely to be more difficult to forecast, given the fact that historical data are very important inputs to the process of a forecast. Even if a new company is to rely on the operating history of other companies in the same or a related industry, the available information on the operating

history of those companies is likely to be a less reliable predictor of future earnings than its own operating history (Mak, 1989). Similarly, Bilson et al. (2003) suggest that younger firms tend to refrain from disclosing forecasts because of the higher expected costs of potentially inaccurate forecasts and the relatively lower valuation benefits younger (less credible) firms would receive. Bamber and Cheon (1998) report that forecast behavior is associated with firms' growth opportunities which tend to vary across industries. Companies from industries with relatively high growth potential (i.e. high P/E multiple), therefore, may find it more difficult to accurately forecast earnings. Consistent with the above, Patell (1976) reports that utilities issue more forecasts than non-utilities, in the secondary market.[18]

The above highlights the importance of addressing the potential sample selectivity bias when examining the association of underpricing and disclosure of management earnings forecasts. Given relatively low litigation costs in the UK, we will examine only IPO's characteristics and managerial ability to make forecasts as potential determinants of the voluntary disclosure. We also ignore the possibility that voluntary disclosure of management earnings forecasts in IPO prospectuses could be motivated by reasons other than prospective listings. This assumption seems justified given the timing of disclosure and the fact that we consider only forecasts disclosed in IPO prospectuses that fully comply with the listing requirements.[19]

The research discussed above, motivates the following hypotheses:

H1: There is a negative association between underpricing and voluntary disclosure of management earnings forecasts

H2: Firms with overly optimistic forecasts will underperform their counterparts in the long-run

When testing the above hypotheses we will control for competing signaling mechanism used by IPO firms (i.e. retained ownership) and sample selection bias. In order to address the potential sample selectivity bias we employ Heckman's selection model.[20] The procedure involves estimation of a probit (i.e. selection) model explaining why some managers disclose forward looking information regarding earnings and others do not. The estimated probability of forecasting, based on publicly available information prior to the IPO/forecasts, is then used as a control variable in the model for underpricing. Li and Prabhala (2005) highlight the dual nature of the self selection correction factor constructed in this way. They show that this procedure for self selection can be viewed as an inclusion of an omitted variable, such as private information. The control variable, therefore, could be seen as an estimate of the private information underlying a manager's disclosure choice, and testing its significance (in the model for underpricing) would be a test of whether private information possessed by managers affects ex post outcome (i.e. underpricing).

We will also examine interaction between disclosure of and characteristics of forecasts (i.e. accuracy, bias, forecast news) together with the presence of reputable auditors and analysts following,

3. Data and Methodology

A. Data

Our sample consists of 1,600 randomly selected IPOs from the LSE during the period 1981-2004. For the sample firms, IPO prospectuses were collected from the following sources: Company House, Thomson Analytics Database (Global Access), Manchester Business School Library, and the Center for Management Buy-outs Library at the University of Nottingham. In our sample, 816 prospectuses were prepared for the LSE's official list (main board), and the rest are prospectuses prepared for one of the unofficial lists (i.e. Third Market, USM, or AIM). Our sample represents at least one third of the population of UK listings during the sample period.[21] (Table 1 - Panel A).

Table 1 about here

Sample firms adopted one of the following listing methods: offers for sale (32% of all the offers during the sample period), placing (42% of all placings during the sample period), combination of offer and placing (62% of all combinations during the sample period), introduction (22% of all introductions during the sample period), and transfer between different lists (8% of all transfers during the sample period).[22] About 38% of the sample

companies are from the service (other than financial) sector, 30% from manufacturing, 17% from hi-tech industries, 7% from the finance sector, and 8% from other sectors. Descriptive statistics for the sample companies is reported in Table 1 – Panel B. The issue size raised by the sample companies varied substantially. The greatest amount raised was in excess of £3bn while the lowest was about £30,000. The sample companies have an average (mean) age of about 10 years.[23] The average (mean) percentage of shares sold is about 40%, ranging from 2% to 100%.

B. IPOs' Short and Long-run Performance

The initial returns ($IR_{i,t}$) were calculated on the basis of offer prices reported in prospectuses and closing daily adjusted prices on the first trading date.

$$IR_{i,t} = (P_{i,1} - P_{i,o})/P_{i,o} \qquad (1)$$

Given the variation in size and markets for our sample companies, the FTSE All Share index is used for calculation of market adjusted initial returns ($MAIR_{i,t}$),

$$MAIR_{i,t} = IR_{i,t} - (I_{i,1} - I_{i,o})/I_{i,o} \qquad (2)$$

where, $MAIR_{i,t}$ is the market index adjusted return of company i; $P_{i,1}$ is the closing price of company i at the end of the first trading date; $P_{i,o}$ is the offer price of company i (time index 0 refers to the date of the prospectus); $I_{i,1}$ is the FTSE All Share Index at the end of

the first trading day and $I_{i,o}$ is the FTSE All Share Index on the date of the prospectus of company i.

Levis (1993), Khurshad et al. (1999), and Espenlaub et al. (2000) emphasize the importance of an appropriate benchmark in the calculation of long term returns in the UK context. Espenlaub et al. (2000), for example, use four different benchmarks to measure the long term performance of 588 UK IPOs during the period from 1985 to 1992. They concluded that the CAPM would seem misspecified due to the importance of size effects and the fact that IPOs are typically small stocks. The results based on Fama - French style benchmarks may be contaminated due to the nature of the UK book to market value (BV/MV) data available from Datastream. In this paper, therefore, aftermarket financial performance is examined by analysing both cumulative abnormal (CAR) and buy-and-hold abnormal (BHR) returns. The average market-adjusted return for a sample of n companies in event month t is defined as:

$$AR_t = \frac{1}{n} \sum_{i=1}^{n} ar_{it} \qquad (3)$$

The cumulative abnormal return over T months starting from month t_o is the summation of the average abnormal returns,

$$CAR_{to,T} = \sum_{t=to}^{T} AR_t , \qquad (4)$$

Where, R_{it} is the abnormal return of company i in event month t calculated on a compounded basis, r_{it} is the return for company i in event month t, and r_{mt} is the return of FTSE All Share Index in event month t.

$$\mathrm{BH}\,R_{it} = \prod_{t=1}^{T}(1+r_{it}) - \prod_{t=1}^{T}(1+r_{mt}) \tag{5}$$

The results of some recent studies concerning IPOs' long-term returns are not conclusive and highlight the importance of the choice of methodologies. For example, Fama (1998) suggests that cumulative abnormal returns may be less biased than buy and hold returns as a measure of long term performance since the latter, calculated on a compounded basis, may exaggerate a single period's poor performance. Barber et al. (1999), and Kothari and Warner (1997) provide a thorough assessment of various metrics for the measurement of long term returns. They document three main potential biases in the calculation of long term returns: a) survivor bias, which may occur if failing firms are excluded from the sample; b) rebalancing bias, related to the calculation of cumulative returns; and c) skewness bias due to the fact that long term returns are typically skewed. In order to minimise these potential misspecifications, we evaluated long-term buy-and-hold market-adjusted compounded returns and cumulative abnormal returns. We also included all failing firms in the calculation of long-term returns. To account for skewness bias, a non-parametric test[24], and a skewness-adjusted t statistic with bootstrapped p-values are used to test the null hypothesis that mean buy-and-hold returns are equal to zero:[25]

$$t_{sa} = \sqrt{n} \, (S + 1/3 \, \hat{Y} \, S^2 + 1/6n \, \hat{Y}), \tag{6}$$

$$S = \eta \, (R_t) / \, \delta \, (R_t),$$

$$\hat{Y} = \{\Sigma \, [R_{it} - \eta \, (R_t)]^3\}/[n \, \delta \, (R_t)^3]$$

where, $\eta \, (R_t)$ is the sample mean and $\delta \, (R_t)$ is the cross-sectional sample standard deviation of buy-and-hold returns for the sample of n firms.

The distribution of t-values was simulated by drawing 10,000 resamples of size n/4, with replacement, from each return series. The critical t values for a level of significance (α) were calculated by sorting all 10,000 simulated t values and by searching for the cut-off points (e.g. top and bottom companies for $\alpha = 5\%$) at which the null hypothesis can be rejected. The critical values are, therefore, obtained by solving:

$$Pr[t_{sa}^b \leq x_l*] = Pr[t_{sa}^b \geq x_u*] = \alpha/2, \tag{7}$$

where $x_l = 0.5\%$ and $x_u = 2.5\%$.

C. Heckman's Model for Management Earnings Forecasts and Underpricing

In IPO markets the decision to disclose could be related to the choice of IPO method, size, age, and industry classification of the firms.[26] It is important to note that the explanatory variables used in our selection model are public information, and that ex ante expected value of the error term in the probit model is zero,

$$\text{DISCLOSURE}_i = \alpha + \beta_1\,\text{ISSIZE}_i + \beta_2\,\text{AGE}_i + \beta_3\,\text{METHOD}_i + \beta_4\,\text{INDUSTRY}_i + \varepsilon_i \qquad (8)$$

DISCLOSURE is a categorical variable equal to 1 for companies which disclosed forward looking information regarding earnings and 0 otherwise. Gross IPO proceeds are proxy for the size of issue (ISSIZE). AGE is length of sample firm's operating history in number of days. INDUSTRY is a categorical variable taking value 1 for IPOs from service sector, 0 otherwise. Finally, METHOD is a categorical variable taking value 1 for offer for sales (including combinations of offers and placings) and 0 otherwise.

Since we can never directly observe the effect of voluntary disclosure of management forecasts on offer prices, we control for the probability that management would volunteer to disclose the forecasts by including the probability in our second stage model for underpricing. This is a correction variable *(LAMBDA)*, created by the probit regression as an inverse of the Mills' ratio (i.e. non-selection hazard). Our *LAMBDA*, therefore, could be seen as an estimate of the private information underlying a manager's disclosure choice, and testing its significance (in the second regression) is a test of whether private information possessed by managers affects the ex post outcome (i.e. underpricing).[27]

Hypothesis one is tested by regressing initial returns on the disclosure variable and controlling for relevant variables identified in previous IPO literature. For example, we use company's AGE as a proxy for ex ante uncertainty and expect that a longer operating history is negatively associated to the degree of underpricing.[28] Percentage of shares sold (i.e. 100 − percentage of retained ownership) could be seen as an alternative signaling

mechanism to voluntary disclosure of management earnings' forecasts. Ritter (1984), Kim et al. (1995), Klein (1996), Firth and Liau-Tan (1997), and DeGeorge and Zechauser (1993) all find that IPOs with lower percentage of shares sold (i.e. higher retained ownership) received higher market valuation. Finally, issue size (ISSIZE) and BV/MV have been used in the IPO literature as proxies for relative overpricing (Loughran and Ritter, 1995; Habib and Ljungqvist, 1998),[29]

$$IR_{it} = \alpha + \beta_1*\ln(ISSIZE_{it}) + \beta_2*\ln(AGE_{it}) + \beta_3*\ln(SOLD_{it}) + \beta_4*\ln(BV/MV_{it}) + \beta_5 * DISCLOSURE_{it} + \beta_6 * LAMBDA_{it} + \varepsilon_{it} \qquad (9)$$

The above model is consistent with the widely used P/E model, and implicitly assumes that the multiplier is a linear function of the explanatory variables and signals (see Downes and Heinkel, 1982; Kim and Ritter, 1999).

An issue that arises in the application of Heckman's procedure is whether the two sets of variables can be identical or whether we need exclusion restriction so that there is at least one variable in the first stage regression that is not repeated in the second stage regression. Theoretically, exclusion restrictions are not required in the selection model given that the model is identified by non-linearity (Li and Prabhala, 2005; Heckman and Navarro-Lozano, 2004).[30] Nevertheless, we run diagnostic tests and find no evidence of problems related to multicollinearity in our selection models.

D. Characteristics of Forecasts and IPO Performance

An important feature of our data set is that we can observe disclosure decision as well as earnings forecasts (i.e. magnitude of the selection variable). We examine forecast bias and accuracy, based on percentage forecast errors,[31]

$$FE\ (\%) = (A_{it}-F_{it})/\ F_{it},\qquad\qquad(10)$$

Where, F_{it} is forecast profit before tax, for the next accounting period, disclosed in IPO prospectuses, and A_{it} is reported profit before tax that corresponds to the accounting period for which the forecasts were made.

The negative forecast bias corresponds to optimistic forecasts while positive bias indicates pessimistic forecasts (i.e. underestimated increase or overestimated reduction in earnings). We were also able to establish whether forecasts are conveying 'bad' or 'good' news by comparing forecast earnings (F) with last year earnings (A_{it-1}), both publicly available information at the time of the IPO. Forecast earnings higher than last year earnings convey 'good' news, while forecasts of declining earnings convey 'bad' news.[32] In order to evaluate the incremental effects of forecast accuracy, forecast bias, and bad/good news we allow disclosure to enter the model on its own and in interaction with the following variables: *DISCxAFA, DISCxOPTIM,* and *DISCxBADN*. A significant positive coefficient on the above interaction variables would indicate that the association between the underpricing and disclosure is stronger for managers with more accurate, optimistic, and forecasts conveying bad news, respectively.

We also assess the sensitivity of our results to model specification by considering auditors' reputation and analysts following equation 9.[33] Market segmentation for audit firms in the UK has followed world-wide accepted practice with regard to the Big Six firms. The Big Six are the largest firms and regarded as highly reputable in the previous literature. To test for the incremental effect of auditors' reputation, an interaction variable set equal to one if the audit firm for disclosing IPOs was one of the Big Six and zero otherwise *(DISCxAUDIT)*. In order to examine the possibility that the association between disclosure of management earnings forecasts and underpricing may be diluted by analysts' following, we constructed an interaction variable *(DISCxANLTS)* set equal to one if at least one analyst made earnings forecast for the same accounting year as disclosing managers, and zero otherwise.[34]

5. Results

A. Voluntary Disclosure and Accuracy of Management Earnings Forecasts

For each sample firm we checked the prospectus for disclosure of any forward looking information that may qualify as a profit forecast. We identified 611 (38% of the sample) firms with forward looking information, 469 (29% of the sample) of which qualify as profit forecasts according to the LSE's Listing Rules. Average (mean and median) forecast period was 89 and 64 days, respectively, with a maximum forecast period of 11 months.[35] Firms applying for listing on the LSE's main board disclosed forecasts in 33% of cases while firms applying for unofficial lists (i.e. USM, Third Market, and AIM)

disclosed in 24% of cases. Among the companies that disclosed earnings forecasts, only two disclosed qualitative forecasts and all the others disclosed quantitative (numeric) forecasts. The numeric forecasts were forecasts of PBT (136 firms), dividends (79 firms), and joint forecasts of PBT and dividends (252 firms). The forecasts were predominantly disclosed as joint forecasts of profit before tax and dividend payments (65% of cases). We identified 51 firms disclosing quantitative earnings estimates. A further 91 of our sample firms disclosed other forward looking information such as unaudited interim results, financial illustrations, and quantitative revenue forecasts.

Table 2 about here

Our results confirm expectations regarding association between the different listing methods and the decision to disclose earnings forecasts. Managers engaged in offers for sale tend to disclose more frequently and are more likely to disclose numeric earnings forecasts. This is consistent with evidence for disclosure prior to SOEs, which suggest that financing firms (firms that access capital market) have a greater incentive to voluntary disclose earnings forecasts than non-financing firms (Frankel et al. 1995). Managers involved in non-financing listings tend to disclose other forward looking information rather than profit forecasts.

Table 1 - Panel B provides comparison of age, size of issue, and percentage of shares sold for disclosing and non-disclosing firms. Disclosing firms tend to be older, with smaller issues, and a lower percentage of shares, measured by differences in median values. Our

results differ from the results reported in Jog and McConomy (2003) for Canadian IPOs. The authors report a lack of statistically significant differences between characteristics of forecasters and non-disclosing firms in a sample of 258 Canadian IPOs. Among the disclosing firms, we found no statistically significant differences between firms that disclose numeric forecasts and firms that disclose other types of forward looking information, except for median age. The firms disclosing numeric profit forecasts tend to be older than their counterparts.

We find that 88% of numeric forecasts have a positive FE, suggesting that managers make cautious (pessimistic) forecasts. Our findings are consistent with results reported in previous UK studies on management forecast accuracy (Dev and Web 1972; Ferris and Hayes 1977; Keasy and McGuiness 1991). The above results, however, differ from results reported in the SOE literature. For example, McNichols (1989) and Frankel et al. (1995) report that majority of managers disclosed optimistic forecasts with statistically significant mean average forecast error.[36] Similarly, Lang and Lundholm (2000) report that the tone of disclosure statements prior to SOE is optimistic.

The average FE and AFE are 5.51% and 10.7%, respectively. They are both statistically significant at 1% level. The majority of numeric forecasts (65%) convey good news (i.e. higher PBT than last year). Overall, accuracy of pessimistic and forecasts conveying good news is better than the accuracy of their counterparts disclosing optimistic and forecasts conveying bad news.

Table 3 about here

B. IPOs' Performance

Results for underpricing are presented in Table 3 (Panel A).[37] Average (mean) IR and MAIR are 20.23% and 20.37%, respectively.[38] They are both statistically significant at 1% level. [39] The reported results also suggest statistically significant difference in mean IR and MAIR between disclosing and non-disclosing firms.[40] Companies with disclosed quantitative forecasts "left less money on the table" than their counterparts that chose not to disclose forecasts. The disclosure also seems to be associated with the volatility of initial returns. Standard deviation of initial returns for IPOs without disclosure is about 5 times higher than the standard deviation of their counterparts with disclosed quantitative forecasts.[41] The results are consistent with our expectations that disclosure reduces the degree of underpricing.[42]

Among disclosing firms, optimistic managers have lower IR and MAIR then their pessimistic counterparts.[43] After controlling for disclosure of bad or good news, the above results remain robust only in the sub-sample of firms that made forecasts conveying good news.[44] Firms disclosing forecasts that convey bad news tend to have a higher degree of underpricing than their counterparts disclosing good news. The difference in average IR and MAIR, however, is not statistically significant.

Table 4 about here

Overall, our sample IPOs exhibit underperformance up to twelve months after listings, measured by median BHR and CAR (Table 4 - Panel A). The results suggest a statistical difference between sub-samples with and without disclosure. The IPOs with disclosed quantitative earnings forecasts outperform their non-disclosing counterparts up to 12 months after listings, measured by median BHR and CAR.[45]

We further stratified our results on short and long term performance by characteristics of forecast (Table 5 - Panel A). Optimists exhibit statistically significant negative average (mean and median) BHR returns. IPOs with pessimistic forecasts, however, exhibit statistically significant positive average (mean and median) BHR in all quarters during the post listing year. The results for CARs are consistent with the BHR results in month 12. Optimists underperform pessimists up to 6 months after IPO (measured by CAR) and up to 12 months after IPO (measured by BHR). The difference between optimists and pessimists, measured by CAR, is statistically significant in month 6 (optimists performed worse than pessimists). Measured by BHR optimists performed worse than pessimists in months 6, 9, and 12. We find no statistical difference in long term performance between those IPOs that disclose bad and those that disclose good news (Table 5 - Panel B).

Insert Table 5 about here

As presented earlier, the differences in both underpricing and accuracy between optimists and pessimists is particularly notable in the sub-sample of firms that disclosed forecasts conveying good news. Since optimistic and forecasts of good news may be a genuine

attempt to provide additional information regarding valuation of the firms or an attempt to 'hype' the stock, it is important to analyse long term returns stratified along the same lines. Stratified by good news, the results suggest that pessimists perform better than optimists up to 12 months after IPO, measured by both CAR and BHR. The market, therefore, appears to interpret overly optimistic forecasts of good news as an attempt to 'hype' stocks. [46]

C. Heckman's model for association of voluntary disclosure and underpricing

Results for our probit model are reported in Table 6. All explanatory variables (age, issue size, industry, and IPO method) have expected signs and are highly statistically significant. Younger, companies from service industries, and companies involved in larger issues are less likely to disclose forecasts. As expected, the choice of IPO method has the highest marginal effect on management's decision to disclose forecasts. The choice of offer for sale increases chances of disclosure by 14.5%. Reported results for Pesaran-Timmermann statistics and goodness of fit suggest that the model correctly predicted managers' voluntary disclosure of earnings forecasts in 65.5% of cases.

Insert table 6 about here

Results of our Heckman model confirm findings about association of disclosure and underpricing (Table 6). The DISCLOSURE variable has an (expected) negative sign and it is statistically significant at 5% level, after controlling for sample selection bias and

other relevant variables identified in IPO literature. Size of issues and age, often used as proxies for a level of information asymmetry are, negatively associated with the degree of underpricing (statistically significant at 1% and 5%, respectively). Percentage of shares sold is positively associated with the degree of underpricing (statistically significant at 10%). [47]

The coefficient for LAMBDA (i.e. inverse or Mills ratio) is statistically significant (at 10%) in all regressions which suggests that standard OLS estimates, without corrections for self selection, tend to underestimate the impact of management forecasts on underpricing. The results also suggest the importance of managers' private information for the subsequent performance of IPOs.[48] The coefficients for interaction terms were positive, but not statistically significant.[49] The association between underpricing and management earnings forecasts, therefore, seems to be driven by voluntary disclosure (that is verifiable at the time of IPO) rather than by characteristics of the forecasts (verifiable after the IPO). Forecast of bad news and auditors' reputation (both verifiable at the time of IPO), have no incremental effect on underpricing.

We identified 279 our sample firms with numeric forecasts on the IBES database. Among them, analysts provided forecasts that could be matched with our sample management forecasts, for 158 firms. As expected, the sign of the coefficient *DISCxANLST* is negative suggesting that disclosed forecasts are particularly important for firms that are not followed by analysts. The results, however, suggest no statistically significant incremental effect of analysts following. Signs and statistical significance of other

coefficients are the same as in previous regressions, except for LAMBDA which is no longer significant.

6. Conclusion

In this paper we examine voluntary disclosure, accuracy, and relevance of management earnings forecasts, in the UK primary market. Our results suggest that 29% of the sample companies disclosed earnings forecasts in the IPO prospectuses. The forecasts were predominantly disclosed as quantitative, joint forecasts, of profit before tax and dividend payments (65% of the forecasts). Only 3% of the sample companies disclosed estimates of earnings and/or dividends.

Our probit model correctly predicts management choice to disclose earnings forecasts in 65% cases. Managers in firms opting for offers for sale are more likely to disclose forecasts than their counterparts choosing other listing methods. Other significant determinants of voluntary disclosure are: size of issue, length of operating history, and industry. Firms with smaller issues, longer operating history, and from non-service related industries are more likely to disclose forecasts.

Overall, managers seem to be pessimistic forecasters with the average (mean) absolute error for earnings forecasts is 10.7%. Average mean IR and MAIR, are 20.1% and 20.23%, respectively. The underpricing is negatively associated with the disclosure of

profit forecasts. The IPOs with disclosure, on average, "left less money on the table" and exhibited about 5 times lower standard deviation of initial returns. The results remain robust after controlling for sample selection bias, ex ante uncertainty, size of issue, and other relevant variables identified in the IPO literature. We find no evidence of incremental effects on underpricing for either forecast bias or forecast accuracy. Similarly, reputation of auditors that verify forecasts does not seem to have an incremental effect on underpricing. We interpret the above findings as further evidence for relevance of voluntary disclosure, consistent with the theoretical prediction that voluntary disclosure reduces cost of capital.

In the long run, IPOs with overly optimistic forecasts underperform their counterparts with more cautious, pessimistic forecasts. The overly optimistic managers, therefore, seem to be penalized once the actual earnings were announced, revealing the true characteristics of the forecasts. The above results are consistent with findings in previous literature regarding underwriters who 'cheat' on the underpricing equilibrium' (Beatty and Ritter 1986), financial analysts who provide overly optimistic forecasts for listed companies (Dechow et al. 1999; Rajan and Servaes 1997), and managers in listed companies who fail to meet/beat earnings benchmarks (Kasznik and McNichols 1999; Richardson et al. 1999; Bartove et al. 2002).

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Table I

Sample representation and descriptive statistics

The population is all IPOs from LSE's official and unofficial lists, after exclusion of investment trusts, reverse takeovers, and re-admissions. Official list relates to full listings on the LSE (main board) while unofficial list relates to issues on: Third Market (1987-90), Unlisted Securities Market (USM; 1980-96), and Alternative Investment Market (AIM; 1995-2004).Data for equity issues (without fixed interest instruments) for UK companies only (without foreign companies listed on the LSE – international listings). Non-money raising re-admissions (also known as re-listings or secondary IPOs) excluded. Offer includes: UK offer, UK and global offer, offer and admission. Offer for sale includes offer at fixed price, offer by tenders, and offer by subscription. Placement includes: UK placement, placement and admission, placement and ESOP, placement and right issue. Combination includes: combination of placing and offer (including intermediate offers), and combination of placing offer, and admission. Introduction includes: admission, introduction, and combination of admission and right issue. Transfers include transfers from AIM, from Official list (1 case), from Third Market, and from USM, related to Rule 4.2a. Transfers may involve listings of new or existing companies. Some introductions-transfers and some introductions of new companies are not money raising activities. Some re-admissions and transfers are organised via placing, in which case they are money raising transactions. Data for 1984-98 for official list and 1984–94 for USM, adopted from KPMG Corporate Finance, various issues 1992-98. Data for 1998-2004 from LSE Primary Market Fact Sheet – December issues, and author's calculations. Data on population not available for: Offers (1981, 1982), Placing (1981, 1982), Introduction (1981, 1982, 1983), Transfer (1981, 1982, 1983), Introduction (1981, 1982, 1983) and Combination (1981 – 86), from the official list; Offer (1981, 1982, 1995), Placing (1981, 1982, 1995), Introduction (1981, 1982, 1983, 1995), Transfer (1981, 1982, 1983, 1995) and Combination (1981 – 85), from the unofficial list. AGE is length of operating history measured in number of days from date of incorporation until prospectus date. ISSIZE is gross proceeds from IPOs in £ (000). SOLD is percentage of shares sold in issue relative to number of all outstanding shares after the issue. Initial returns as, IR= (first closing price – offer price)/offer price; Market adjusted initial returns as, MAIR = [(first closing price – offer price)/offer price]

- [(FTSE All on the first trading date – FTSE All on the prospectus date)/FTSE All on the prospectus date].

Table I - *continued*

Panel A: Sample representation

% of population	Offer	Placing	Combination	Introduction	Transfer	Total by market
Official list	30	46	99	16	0.3	33
Un-official list	49	37	20	28	15	32
Total by method	32	42	62	22	8	33

Panel B: Sample descriptive statistics

	AGE	ISSIZE	SOLD
Mean	3,243	42,177	40
Median	1,046	6,225	34
Min	7	30	2
Max	58,919	3,088,500	100
St.deviation	6,508	171,040	22

Table II

Voluntary disclosure of management earnings forecasts, estimates, and other forward-looking information

AGE is length of operating history measured in number of days from date of incorporation until prospectus date. ISSIZE is gross proceeds from IPOs in £ (000). SOLD is percentage of shares sold in issue relative to number of all outstanding shares after the issue. P values for two samples T-test for difference in means and two samples Mann Whitney (M-W) test for difference in medians, reported in parentheses. Disclosure is percentage of total number of IPOs opting for different methods, and disclosing any forward looking information regarding earnings. Earnings forecast is percentage of the disclosing companies which disclosed numeric earnings forecasts. Earnings estimate is percentage of the disclosing companies which disclosed numeric earnings estimates. Other is percentage of the disclosing companies which disclosed any other disclosure of forward looking information such as: un-audited interim accounts, qualitative PBT forecast, numeric revenue forecast, and financial illustrations. Offer, placing, combination and introduction as defined in Table 1.

Panel A: Disclosure and sample firms' characteristics

	AGE		ISSIZE		SOLD	
	T - test	M-W	T - test	M-W	T - test	M-W
With disclosure vs. without disclosure	(0.438)	(0.008)	(0.214)	(0.000)	(0.338)	(0.024)
With earnings forecasts vs. without disclosure	(0.524)	(0.000)	(0.147)	(0.000)	(0.860)	(0.208)
With earnings forecasts vs. with estimates and other disclosure	(0.864)	(0.010)	(0.401)	(0.763)	(0.248)	(0.289)

Panel B: Disclosure by listing method

(%)	Disclosure	Earnings forecast			Earnings estimate			Other
		Dividends	PBT	Div. & PBT	Dividends	PBT	Div. & PBT	
Offer	52	16	13	60	0	1	5	5
Placing	43	13	15	50	0	5	5	12
Combination	38	14	11	50	0	0	6	19
Introduction	11	16	9	16	0	6	0	53

Table III

Descriptive statistics of management earnings forecast errors

FE is forecast error for all companies that disclosed numeric PBT forecasts (with or without disclosing dividend forecasts). FE is percentage error calculated as, FE (%) = (A-F)/F. A is actual reported profit and F is forecast profit disclosed in the prospectuses. Negative FE indicates optimistic forecasts. AFE is absolute forecast error. 16 outliers with FE ≥100% (two decimal places rounded), British Steel, London and Edinburgh Publishing, Mackie International, National Power, Showdon and Bridge, The Body Shop, Torch Holdings, Ford and Weston Group, Aaronite, Goshawk Insurance Holdings, Aston Villa, Crown International, Dwek Group, Granger Telecom, Malaya Group, Rackwood Mineral Holdings. FEs for Serco, Tetra Group, The Maiden Group are excluded since forecasts are made for half year results and reported actual PBT is 12 months. Television South and Owners Abroad are excluded since forecasts are made for end of accounting year and reported actual PBT is for a period shorter or longer than the accounting year. P-values for one sample, one tail, T and Wilcoxon tests of average (mean and median) = 0 vs. average (mean and median) >0, reported as: a) for 1% level, b) for 5% level, and c) for 10% level of statistical significance. Unreported results for one sample, two tail, test of average (mean and median) = 0 vs. average (mean and median) ≠ 0, are the consistent with the results for the one tail test, except for the T-test result with outliers (0.19).

(%)	Count	Percentage with negative FE	Mean	Median	Mode	St. deviation	Highest negative	Highest positive
FE (with outliers)	353	12.46	58.52[c)]	4.94[a)]	0.00	832.98	-1,348.42	14,045.25
FE (without outliers)	337		5.51[a)]	4.94[a)]	0.00	15.76	-78.50	71.52
AFE (without outliers)	337		10.70[a)]	6.10[a)]	0.00	12.80	-	-

Table IV

Voluntary disclosure and IPO performance

Results for IPOs short and long term returns with and without disclosure of numeric PBT forecasts (with or without disclosing dividend forecasts). All returns are in percentages. Unadjusted initial returns calculated as, $IR = (P_1 - Po)/Po$, where P_1 is a closing price on a first trading day, whereas Po is an offer price, from IPO prospectus. Market adjusted initial returns calculated as, $MAIR = (P_1 - Po)/Po - (I_1 - Io)/Io$, where I_1 and Io are corresponding values for FTSE All Share Market Index. Mean and median CARs calculated for each month as equally-weighted returns using the FTSE All Shares Index as a benchmark as,

$$CAR_{to,T} = \sum_{t=to}^{T} AR_t .$$ Mean and median BHARs calculated for each month as equally-weighted compounded returns using the FTSE All Shares Index as a

benchmark as, $BHAR = R_{it} = \prod_{t=1}^{T}(1+r_{it}) - \prod_{t=1}^{T}(1+r_{mt})$. The t-statistics for the mean BHR in month 't' were adjusted for skewness using a bootstrapping

procedure (Barber et al. (1999). The t-statistics for the mean CAR in month 't' are computed as $CAR_t \sqrt{(n_t)}/CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = [t\,var + 2(t-1)cov]^{1/2}$, where 't' is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (see Ritter, 1991). Statistical significance for 1 sample two tail T test and Wilcoxon tests for mean/median = 0 vs. mean/median $\neq 0$, indicated as: a) for 1% level, b) for 5% level, and c) for 10% level. P values for two samples T-test for difference in means and two samples Mann Whitney test for difference in medians, reported in parentheses.

Table IV - *continued*

Panel A: Short term returns

	Count	IR			MAIR		
		Mean	St.Dev.	Median	Mean	St.Dev.	Median
Total sample	1,084/1,084	20.23[a]	82.19	6.15[a]	20.37[a]	83.13	6.82[a]
With disclosure	257/253	11.54[a]	17.76	6.95[a]	10.68[a]	21.69	7.22[a]
Without disclosure	669/643	24.46[a]	100.80	5.84[a]	25.06[a]	102.15	6.46[a]
With disclosure vs. without disclosure		(0.002)		(0.123)	(0.001)		(0.493)

Table IV - *continued*

Panel B: Long term returns

	Months	Positive BHR (%)	BHR		CAR	
			Mean	Median	Mean	Median
Total sample	3	46	18.40[b]	-0.90	12.30	-2.40[a]
	6	47	25.10[a]	-1.60	-0.90	-3.10[a]
	9	43	27.60[a]	-4.50[a]	-0.10	-2.20[a]
	12	41	25.30[a]	-8.50[a]	1.00	-2.00[b]
With disclosure	3	51	3.30[a]	0.60[c]	0.20	-2.20
	6	53	6.70[a]	2.60[b]	-0.40	-2.30[c]
	9	50	6.00[b]	0.50	1.00	-0.20
	12	49	7.10[b]	-1.70	2.40	0.40
Without disclosure	3	45	28.00[c]	-1.35	21.00	-2.10[c]
	6	45	36.00[b]	-3.50[b]	-0.70	-3.60[a]
	9	41	41.00[b]	-6.80[a]	0.20	-2.20[a]
	12	38	38.00[a]	-11.40[a]	1.20	-1.80[b]
With disclosure vs. without disclosure	3		(0.281)	(0.023)	(0.252)	(0.630)
	6		(0.308)	(0.001)	(0.856)	(0.117)
	9		(0.299)	(0.001)	(0.701)	(0.112)
	12		(0.317)	(0.001)	(0.491)	(0.055)

Table V

IPO returns stratified by characteristics of management earnings forecasts

Accuracy, bias, and good vs. bad news for numeric forecasts of next year PBT and/or next year PBT together with next year dividends. AFE is absolute value of FE. Pessimists are optimists are managers with positive and negative forecast errors, respectively. Bad news forecasts are all forecasts where forecast earnings are less than last year earnings. Good news forecasts are all forecasts where forecast earnings are more than last year earnings. IR = initial returns, defined as $(P_1 - P_0)/P_0$, where P_1 is a closing price on a first trading day, whereas P_0 is an offer price, from IPO prospectus. MAIR = market adjusted initial returns, defined as $(P_1 - P_0)/P_0 - (I_1 - I_0)/I_0$, where I_1 and I_0 are corresponding values for FTSE All Share Market Index. Mean and median CARs calculated for each month as

equally-weighted returns using the FTSE All Shares Index as a benchmark as, $CAR_{to,T} = \sum\limits_{t=to}^{T} AR_t$. Mean and median BHARs calculated for each month as

equally-weighted compounded returns using the FTSE All Shares Index as a benchmark as, BHAR= R_{it} = $\prod\limits_{t=1}^{T}(1+r_{it}) - \prod\limits_{t=1}^{T}(1+r_{mt})$. The t-statistics for the

mean BHR in month 't' were adjusted for skewness using a bootstrapping procedure. The t-statistics for the mean CAR in month 't' are computed as CAR_t $\sqrt{(n_t)}/CSD_t$, where n_t is the number of firms trading in each month, and CSD_t is computed as $CSD_t = [t\,var + 2(t-1)cov]^{1/2}$, where 't' is the event month, var is the average (over 36 months) cross-sectional variance, and cov is the first-order autocovariance of the AR_t series (see Ritter, 1991). Statistical significance for 1 sample two tail T test and Wilcoxon tests for mean/median = 0 vs. mean/median $\neq$ 0, indicated as: a) for 1% level, b) for 5% level, and c) for 10% level. P values for two samples T-test for difference in means and two samples Mann Whitney test for difference in medians, reported in parentheses.

Table V - *continued*

Panel A: IPO returns stratified by management earnings bias

Months after IPO	Count		IR	MAIR	CAR				BHR			
					3	6	9	12	3	6	9	12
Optimists	32	Mean	8.18[a]	8.03[a]	-7.79	-6.95	-1.28	-4.16	-3.24	-9.83[b]	-13.93[b]	-23.41[b]
		Median	5.00[a]	3.64[a]	-7.08[b]	-5.22[b]	1.61	-6.45[c]	-1.93	-10.19[a]	-14.19[a]	-28.17[a]
Positive BHR (%)									44	34	31	34
Pessimists	229	Mean	12.08[a]	11.46[a]	2.04	1.49	2.07	3.68	4.70[a]	8.95[a]	8.52[a]	10.95[a]
		Median	7.14[a]	7.62[a]	-1.10	-1.47	-0.17	0.99[c]	1.99[a]	4.47[a]	3.78[b]	1.72[c]
Positive BHR (%)									55	59	55	53
Optimists vs. pessimists		Mean	0.079	0.201	0.004	0.003	0.260	0.005	0.014	0.000	0.000	0.000
		Median	0.295	0.142	0.012	0.026	0.828	0.034	0.024	0.000	0.002	0.000

Table V - *continued*

Panel B: IPO returns stratified by news conveyed in management earnings bias

Months after IPO	Count		IR	MAIR	CAR 3	CAR 6	CAR 9	CAR 12	BHR 3	BHR 6	BHR 9	BHR 12
Good news	194	Mean	10.98[a]	9.88[a]	0.19	0.72	2.13	3.86	3.14[a]	7.21[a]	4.68[c]	6.55[c]
		Median	6.67[a]	6.94[a]	-1.98	-2.54	0.10	1.17	0.85[c]	4.17[a]	1.66	-3.27
Positive BHR (%)									55	57	54	51
Bad news	67	Mean	14.45[a]	15.44[a]	2.45	-0.16	0.50	-0.00	5.63[c]	5.52	9.20[c]	8.29
		Median	8.95[a]	10.85[a]	-2.07	-0.33	-3.32	-1.84	-0.31	-1.55	-1.86	-0.63
Positive BHR (%)									51	51	49	51
Good vs. bad news		Mean	0.321	0.116	0.492	0.766	0.600	0.142	0.454	0.729	0.481	0.819
		Median	0.300	0.131	0.737	0.996	0.455	0.255	0.872	0.330	0.950	0.875
Good news optimists vs. good news pessimists	24/170	Mean	0.053	0.375	0.019	0.016	0.301	0.003	0.052	0.001	0.003	0.000
		Median	0.913	0.171	0.041	0.053	0.753	0.008	0.064	0.001	0.012	0.002
Bad news optimists vs. bad news pessimists	8/59	Mean	0.713	0.336	0.106	0.095	0.698	0.905	0.149	0.046	0.031	0.013
		Median	0.9153	0.5489	0.1563	0.3378	0.8888	0.7044	0.1809	0.1745	0.0605	0.0552

Table VI

Heckman's model for association of underpricing, voluntary disclosure, and characteristics of management earnings forecasts

This table represents estimates of the Heckman's two step estimation procedure. The first step is probit regression model for determinants of voluntary disclosure. The model is estimated using the Maximum Likelihood method (MLM). The estimation method converged after four iterations. The dependent variable, DISCLOSURE, is a categorical variable set equal to one if the IPO voluntary disclosed any type of forward looking information related to earnings (i.e. numeric forecasts, numeric estimates, other) and zero otherwise. INDUSTRY is a categorical variable set equal to one if sample IPOs comes from service sector and zero otherwise. ISSIZE is natural logarithm of gross proceeds from IPOs. METHOD is a categorical variable set equal to one if the IPO is a public offer and/or combination of offer and placing and 0 otherwise. The second step regressions are ordinary least square (OLS) estimations with heteroscedasticity-consistent t-statistics for significance of the coefficients (White, 1980). The dependent variable, IR, is degree of underpricing, measured as $IR_{i,t} = (P_{i,1} - P_{i,0})/P_{i,0}$. $P_{i,1}$ is the closing price of company i at the end of the first trading date; $P_{i,0}$ is the offer price of company i (time index 0 refers to the date of the prospectus). LAMBDA is a self selection correction factor as an inverse Mills ratio from the first step probit model. AGE is length of operating history measured by days from date of incorporation until prospectus date. SOLD is the proportion of shares sold by the offer; BV/MV is book to market value ratio. DISCxAFE is an interaction variable between DISCLOSURE and absolute forecasts error *(AFE)* as defined in Table 6. The variable takes value equals to *AFE* when forecasts were disclosed, and 0 otherwise. A small positive constant (0.000001) is added to 'perfect' forecasts with *AFE* equal to zero, in others to differentiate non-forecasters from the 'perfect' forecasts. The *AFE* variable is without outliers. *DISCxOPTIM* is an interaction variable between *DISCLOSURE* and forecast bias *(FE)* taking value 1 if optimistic forecasts are disclosed (negative FE), and 0 otherwise. *DISCxBADN* is an interaction variable between *DISCLOSURE* and bad news forecasts, taking value equal to 1 if forecast profit is less than last year profit. *DISCxAUDIT*, is an interaction variable taking value, 1, if disclosed forecast was audited by a more reputable auditor, and 0 otherwise. *DISCxANLTS*, is an interaction variable taking value, 1, if at least one analyst disclosed a forecast around IPO, for the same accounting year as a manager, and 0 otherwise. Missing observations for all variables replaced by averages.

Table VI - *continued*

| | 1st: Probit Model | | 2nd: OLS model for IR | | | | | | | | | | | |
| | DISCLOSURE | | IR and Disclosure | | IR, Disclosure, and Optimistic Forecasts | | IR, Disclosure, and Forecast Accuracy | | IR, Disclosure, and Auditors' Reputation | | IR, Disclosure, and Bad News Forecasts | | IR, Disclosure, and Analysts' Following | |
	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P
Intercept	1.518	(0.000)	2.334	(0.000)	2.354	(0.000)	2.350	(0.000)	2.336	(0.000)	2.342	(0.000)	2.360	(0.000)
Ln ISSIZE	-0.151	(0.000)	-0.097	(0.001)	-0.098	(0.001)	-0.098	(0.001)	-0.970	(0.001)	-0.097	(0.001)	-0.098	(0.001)
Ln AGE	0.084	(0.000)	-0.030	(0.049)	-0.030	(0.050)	-0.030	(0.051)	-0.030	(0.050)	-0.030	(0.050)	-0.030	(0.049)
METHOD	0.384	(0.000)												
INDUSTRY	-0.207	(0.003)												
Ln SOLD			0.120	(0.091)	0.120	(0.091)	0.119	(0.092)	0.120	(0.091)	0.120	(0.091)	0.120	(0.091)
Ln (BV/MV)			0.005	(0.856)	0.007	(0.822)	0.006	(0.846)	0.006	(0.853)	0.006	(0.858)	0.006	(0.862)
LAMBDA			-0.479	(0.071)	-0.484	(0.069)	-0.491	(0.065)	-0.479	(0.073)	-0.483	(0.072)	-0.484	(0.077)
DISCLOSURE			-0.105	(0.012)	-0.109	(0.012)	-0.116	(0.011)	-0.107	(0.057)	-0.111	(0.013)	-0.101	(0.029)
DISCxOPTIM					0.058	(0.160)								
DISCxAFA							0.169	(0.220)						
DISCxAUD									0.045	(0.916)				
DISCxBADN											0.040	(0.103)		
DISCxANLTS													-0.059	(0.214)
Max value of the log-likelihood	-1,012													
Schwarz Bayesian	-1,030													
Goodness of fit (%)	65.54													
Pesaran-Timmermann	-56.63	(0.000)												
Adjusted R² (%)			3.2		3.1		3.1		3.1		3.1		3.1	
F-statistics			6.89	(0.000)	5.92	(0.000)	5.94	(0.000)	5.90	(0.000)	5.92	(0.000)	5.97	(0.000)
DW statistics			1.999		1.998		1.998		1.999		1.999		1.998	
Count	1,593		1,084		1,084		1,084		1,084		1,084		1,084	

Appendix I

Since the early 1980s, the UK primary market has consisted of two segments: IPOs aimed at the LSE's official list (Main Board), and IPOs of smaller companies aimed at one of LSE's unofficial lists (i.e. Unlisted Securities Market (USM), during 1980-96; Third Market, during 1987-90; Alternative Investment Market (AIM), since 1995; See Figure 1).[50]

Figure 1 about here

The most important listing methods were: introduction, offer for sales, placings, combinations of offers and placings, and various combinations of introductions with offers and placings.[51] Introductions are used for transfers between the official and un-official lists, admissions (i.e. firms already listed on other stock exchanges), and readmissions. With introductions no shares, either existing or new, were sold. Interestingly, all introductions have the same regulatory requirements as other listing methods (i.e. offer and placing).[52]

Regulations concerning disclosure of management earnings forecasts for new issues in the LSE were stipulated in the LSE's Listing Rules (2002) and the Financial Service Act.[53] According to the Listing Rules profit forecasts or estimates were to be presented in an explicit manner.[54] A profit forecast is for the next financial period whereas a profit estimate is for a financial period which has expired but for which the results have not yet been published.[55] The forecast was defined as 'a form of words' which explicitly or implicitly

'...states a minimum or maximum for the likely level of profits or losses for a period subsequent to that for which the audited accounts have been published... Any data enclosed in a prospectus was treated as profit forecast as long as ...a calculation of an approximate figure for future profits or losses may be made'.[56] For example, a dividend forecast with data about dividend policy was treated as a profit forecast.[57] Earnings forecasts were normally for earnings before tax and for the end of the accounting year.[58] Exceptionally high tax charges and exceptional items were also expected to be disclosed. If the forecasts or estimates were not of profit before tax, managers have to explain the reasons for presenting another item. Financial statements subsequent to the forecasts, are expected to contain relevant items so as to enable the forecast and actual reported figures to be directly compared.[59] In cases of 'material' differences between the actual and forecast profits, management has to explain the difference in a separate commentary on forecasts. The 'material' difference occurs when the results for the forecast period differed by 10% or more from any published forecast.[60]

It is important to mention that the regulation concerning disclosure of management earnings forecasts in prospectuses from unofficial lists complied with the respective regulation for the main board IPOs.[61] The only notable differences were that forecasts included in the AIM's admission documents were reported by reporting accountants, whereas the forecasts made for official listings were required to be verified by auditors and accompanied with sponsor reports.[62]

The authority over earnings forecasts and other listing rules was transferred from the LSE to the Financial Services Authority (FSA) in July 2000. The FSE had not made any important changes in this area, and the Listing Rules continue to provide the most important piece of regulation regarding management earnings forecasts until the introduction of the European Prospectus Directive in 2005.[63]

Appendix II

UK IPO market and regulation, since 1980

IPO methods before 1980: Offer for sale (OFS) at a fixed price or by tender; Introduction – the listing of the existing shares without the issue of further shares – no additional funds raised – could be transfers from USM to the Official list or listings of firms already listed on another stock exchange; Placings– a sponsor underwrites at a fixed price and 'place' the stock to various institutional investors; LSE's Main Board (Official List), Secondary Market (Unlisted Securities Market); Unlisted Securities Market (USM) started in **1980,** for smaller and young companies; closed in **1996** – option given to transfer to Alternative Investment Market (AIM) which opened in **1995)**; Third Market (opened in **1987** for young companies and closed in **1990**- option given to transfer to USM); October **1986** – placing permitted for issues of up to £5m in the USM and £15m on the Official List (before placements were limited to issues of up to £3m); Russell's report in **1991, –** 'intermediaries' offer, where LSE members could apply for shares which they then could distribute to their own clients; offers up to £15 m could be placed in their entirety; issues in £ 15-30m range could choose to place up to 75% of the issue; issues above £30m have to be marketed through OFS, and a sponsor can place up to 50% of the issue. **1993** - The Stock Exchange Listing Rules (Yellow Book), new version with new monetary thresholds for the various methods; the maximum size for offers that can be entirely placed changed from £15m to £25m, and issues that must be marketed through an OFS should be greater than £50m; finally, offers between £25-50m may be marketed partly by an OFS and partly by placing or an intermediaries offer; Publication of Guidance Notes on the Dissemination of Price Sensitive Information (September **1997)** on the bias or accuracy of the management earnings forecasts in IPO prospectuses; **2000-** Financial Services Authority (FSA) took over regulation of share listings from the LSE; .**2002** – FSA published a discussion paper (DP14) on prospective changes in Listing Rules; **2003** – FSA published a consultation paper (CP 203) on prospective changes in listing rules; **2004**-FSA censured Sportsworld Media Group and, for the first time, fined a director of the listing company for failing to notify the market of changes in its profit expectations; **2004** – FSA published a consultation paper with a feedback on CP 203.

Appendix II - *continued*

- **1980** -USM opened
- **1982** – EEC Listing Particulars Directive (80/390/EEC)
- **1983** – EEC Admissions Directive (79/279/EEC)
- **1986**- Placings permitted for issues up to £5m
- **1987**- Third market opened
- **1990**-Third market closed
- **1991** – EEC Prospectus Directive (89/298/EEC)
- **1991**- Russell's report and changes in threshold for listings
- **1993**- New version of the Stock Exchange Rule Book
- **1995**-AIM opened; Rule 4.2 for transfers to AIM
- **1996**- USM closed
- **1997**–The LSE Guidance Notes on the Dissemination of Price Sensitive Information
- **2000**- FSA took over regulation of share listings from the LSE
- **2002** -FSA Discussion paper DP14
- **2003** - EU Prospectus Directive
- **2003** - FSA Consultation paper, CP 203
- **2004**-FSA made a landmark ruling on breaching the LSE's listing rules
- **2004** - FSA Consultation paper and feedback on CP203; 04/16
- **2005** –FSA Finalized listing rules to be published in Spring 2005; Implementation in July 2005

ENDNOTES

[1] After extensive consultations at both, national and European levels the directive was implemented on July 1st ,2005.

[2] Healy and Palepu (2001), for example, identify manager's disclosure decisions as one of the most important research topics within corporate disclosure literature.

[3] In 2004, for example, 80% of all European IPOs floated in London. FSA/PN/043/2005, April 28th ,2005.

[4] More recently, the interest was further intensified with heated debate between the New York Stock Exchange (NYSE) and the London Stock Exchange (LSE) about a 'lack of stringent listing requirements' at the LSE's Alternative Investment Market (AIM). See, AIM Augments the Arduous Process of Listing, Financial Times, 2/2/2007.

[5]This is not surprising given high litigation costs which prevented managers from making the forecasts prior to equity offerings. Until 1973, the Securities and Exchange Commission prohibited forecast data in IPO prospectuses. This was changed with the Safe Harbour Rule in 1973. Accountants provide review-level assurance on management earnings forecasts since 1980, and audit-level assurance since 1986.Firms were, however, still hesitant to forecast (Penman, 1980). The Rule was re-enforced with the introduction of the Private Securities Litigation Reform Act in 1995. In spite of the changes the management earnings forecasts are still absent in US listing prospectuses. For more on legal issues in the USA and Canada see Grundfest and Perino (1997), Bartley and Cameron (1991), Clarkson et al. (1992), and Firth et al. (1995).

[6] For example, the results for Malaysia (Jelic et al. 1998) and Singapore (Tan 1987; Firth et al. 1995) suggest that managers tend to be pessimistic forecasters. However, the results for Canada (Pedwell et al. 1994; Clarkson et al., 1989), New Zealand (Mak, 1989; Firth and Smith, 1992) and Australia (Lee et al., 1993 and Henry et al., 2002) suggest that managers tend to overestimate future earnings in their forecasts. Evidence for Hong Kong is inconclusive. Selva et al. (1994) report optimistic forecasts while Chan et al. (1996) report that management forecasts were conservative and pessimistic. The differences do not seem to relate to

a different disclosure environment. For example, earnings forecasts are mandatory in Singapore, Malaysia, and New Zealand, and voluntarily in other Commonwealth countries.

[7] The pessimistic bias could also be related to managers' attempt to guide analysts earnings forecasts (Hutton, 2005).

[8] Stein (1989) provides an additional explanation for optimistic forecasts. If inflated earnings are expected by investors, they will be reflected in the earnings multiple attached to the company. Thus, managers may try to justify overly optimistic forecasts by the 'downgraded' multiple: '…In spite of being unable to fool the market, managers are 'trapped' into behaving myopically.'

[9] This decline is documented by Lang and Lundholm (2000) who examined similar hypothesis for SOE.

[10] Hirst et al. 2006, suggest that the conflicting results could be related to shifts in legal and regulatory environments in which companies/managers issue their earnings forecasts.

[11] Similarly, from the agency theory perspective, selection of a high quality auditor may reduce agency costs experienced by IPO firms. Consequently, firms with higher agency costs (e.g. induced by higher percentage of retained ownership) are more likely to use a high quality auditor than firms with potentially lower agency costs (Simunic and Stein, 1987).

[12] For more on the importance of considering the packages of accounting choices management makes and their interaction see Fields et al. (2001) and Hirst et al. (2006).

[13] The Heckman (1979) procedure was developed for the economic modeling of the labour force participation and labour supply decisions. For an excellent survey of the procedure with examples of applications in corporate finance see Li and Prabhala (2005).

[14] Given the low litigation cost regulatory requirement in the UK, we will examine IPO characteristics and managerial ability to make accurate forecasts.

[15] Placings target few institutional investors and are often combined with non-fund raising listing methods (e.g. introductions).Overall, book building has not been popular in the UK during the eighties and nineties. For example, there were almost no cases of book building in the eighties while less than 20% of IPOs used it during 1992–99 (Ljungqvist et al., 2003).

[16] This point has been discussed, in a slightly different context, by Barber and Lyon (1996).

[17] Firms' size was identified as a significant determinant of disclosure levels in the Swedish IPO market (Strom 2005).

[18] The ability, in turn, is affected by both firms' characteristics and managerial talent. Given difficulties in finding adequate proxies of managerial talent, we do not examine the association of managerial talent and voluntary disclosure.

[19] Bukh et al. (2003) identified that industry classification affects the disclosure of intellectual capital in Danish IPO prospectuses.

[20] Apart from disclosure prior to capital market transactions (i.e. SEOs and IPOs) other motives behind management voluntary disclosure are related to corporate control, stock compensation, litigation, proprietary costs, management talent signaling. See Healey and Palepu (2001) for a comprehensive survey of the literature.

[21] The population, estimated by authors, consists of 4,913 UK listings from all segments of the UK primary market, during 1981-2004. Our estimates are based on lists provided by the LSE Primary Market Fact Sheets (1999-2004), and KPMG Corporate Finance publications (1984-94). The lists, however, include IPOs for investment trusts, reverse takeovers, and re-admissions (i.e. non-money raising relistings or secondary IPOs), which have not been included in our sample.

[22] Offers for sale include: UK offers, UK and global offers, and combinations of offers and admissions. Placings include: UK placings, combinations of placings and admissions, combinations of placings and ESOPs, and combinations of placings and right issues. Combinations of offers and placings include: placings and

offers (including intermediaries offers), and combinations of placings, offers, and admissions. Introductions (admissions) include: introductions, combinations of introductions and right issues. Transfers include transfers from AIM to the official list.

[23] Ritter (1991) reported an average operating history of 6.46 years for US IPOs.

[24] Mann Whitney test.

[25] Adopted from Barber et al. (1999).

[26] Our sample descriptive statistics confirms expectations regarding the association between the choice of different IPO methods and the decision to disclose management earnings forecasts.

[27] In the probit model private information corresponds to expected value of the error term equal to zero (ex ante) and is constantly revised after disclosure decision (ex post).

[28] See Ritter (1984), Megginson and Weiss (1991), and Ljungqvist and Wilhelm (2002). Similarly, Easly and Ohara (2004) suggest that longer operating history is negatively associated with the cost of capital.

[29] For example, Loughran and Ritter (1995) identified BV/MV as an important proxy for relative overpricing. Habib and Ljungqvist (1998) show that underpricing is strictly decreasing in gross proceeds, even holding uncertainty constant, which is why gross proceeds are not a good proxy for ex ante uncertainty.

[30] We, however, run diagnostic tests and find no evidence of problems related to multicollinearity in our selection models.

[31] Forecast accuracy is determined based on absolute forecast errors (*AFE*).

[32] There are other ways to define optimistic forecasts and those containing good news. For example, good news could be when earnings exceed expected earnings. Given the lack of track record in forecasts and lack of analysts following for many firms in our sample, it is difficult to establish expected earnings

and/or benchmark (i.e. analysts' consensus). We, therefore, use last year's profit as a benchmark which is often used in the forecast literature (see DeGeorge, Patel and Zeckhauser, 1999).

[33] This also provides us with a degree of freedom and helps us to alleviate a potential problem of collinearity second stage regressions (Li and Prabhala, 2005).

[34] The data on analysts following was obtained from IBES database.

[35] Profit estimates are made for current or for a financial period which has expired but for which the results have not yet been published. The estimates are, therefore, similar to earnings pre-announcements. The estimates were on average made for 32 days (median was 25 days), with the maximum estimated period of 112 days.

[36] The results in McNichols (1989) are based on forecasts occurring less than 9 months before offerings.

[37] Since early trading data was not available for all sample companies on the Datastream database, we were able to estimate initial returns for 84% of all sample offers, placements, and combinations of offers and placements.

[38] Unreported results suggest a higher degree of underpricing for IPOs from unofficial lists (IR=26.9 % and MAIR=26.6% vs. IR=13.7% and MAIR=14.4%, respectively). The differences between mean returns between the markets are statistically significant at 1%, for IR, and 5%, for MARI, respectively. Volatility, measured by standard deviation of returns, is also higher for IPOs from unofficial lists (92% vs. 71%).

[39] Data on offer and first day prices was available for 1,089 sample IPOs. Levis (1993) report average MAIR of 14.53%, for a sample of 240 UK IPOs, during 1980-88. Ljungqvist and Wilhelm (2002) report average 5-day unadjusted initial returns of 39.6%, for a sample of 876 UK IPOs, during 1990-2000.

[40] The difference in median returns is not statistically significant.

[41] Unreported results for differences in underpricing between sub-samples with any disclosure (quantitative forecasts, qualitative forecasts, estimates) and without disclosure are economically and statistically consistent with the reported results.

[42] Our results are consistent with the results reported for Canadian IPOs (Jog and McConomy, 2003).

[43] The difference is statistically significant for mean IR at 10% level.

[44] The difference is statistically significant for mean IR at 10% level.

[45] The quantitative earnings forecasts are forecasts of profit before tax and combined profit and dividend forecasts.

[46] Our findings are similar to results reported for SEO. Lang and Lundholm (2000) for example, report that firms that increase disclosure prior to SOE ('hypers') suffer a much larger drop than the consistent disclosers during the 18 months after the SOE announcements.

[47] Unreported results suggest that the results remain robust for alternative measures of retained ownership used in the previous literature (e.g. Leland and Pyle 1977).

[48] Unreported results for regressions with MAIR as dependent variable are statistically and economically consistent with the reported results.

[49] The sign of coefficients for all explanatory variables remain the same, and statistical significance changed only marginally, after introduction of interaction variables.

[50] Following the success of the USM in the early eighties so called Third Market for very small and young companies (without sufficient trading history to join USM), was opened in 1987. Throughout the eighties, the European minimum requirement for listings were less onerous than UK requirements. With the Mutual Recognition of Listing Particulars Directive, in January 1990, the LSE moved to 3 years and has also reduced the trading record for a USM company from 3 to 2 years. With this change the distinction between the Third Market and the USM was further blurred and the Third Market closed in 1990. The companies from the Third Market were given an option to transfer to the USM or to have their shares traded over-the-counter. Finally, with the closure of USM the companies were given the option to transfer to AIM in 1996.

[51] UK's offers for sale are similar to firm commitment offers. Our sample placings are public placings and are similar to best effort IPOs in the US. For more on differences and similarities between US and UK IPOs see Goergen et al. (2006) and Ritter (2003).

[52] Some transfers are combined with placing and/or offer for sale and, therefore, represent secondary issue without cancellation of previous listings. Some re-admissions are also combined with placing and/or offer and they, in fact, represent secondary IPOs with cancellation of previous listings.

[53] LSE's Listing Rules are often referred to as the Yellow Book.

[54] Section 12.22.

[55] Section 12.21. The estimates are, therefore, similar to earnings pre-announcements.

[56] Section 12.23.

[57] This is consistent with the fact that the dividend discount model can be rewritten in terms of forecasted values of future earnings and pay-out ratio.

[58] Before the publication of the Guidance notes in 1997 the accounting basis for forecasts was not specified. The Guidance states that forecasts should be of profit before tax.

[59] Section 12.26.

[60] Section 12.43; this definition seems to be applicable in most of the British Commonwealth countries.

[61] Section 16; see *Figure 1*.

[62] Auditors (i.e. accountants) verify (i.e. report on) the profit forecast by reviewing a compilation of the forecasts and checking for consistency with the accounting policies of the issuer. It is also worth noting that AIM's minimum disclosure requirements for admissions do not contain information on voluntary disclosure of profit forecasts. See Annex 1: AIM - Minimum Disclosure Requirements for the Share Registration Document, section 13.

[63] The Financial Service Act outlawed reckless forecasts but did not go into details about the earnings forecasts (Section 47). Source: FSA Letter accompanying the Revised Listing Rules.