Valuation and Underpricing of Initial Public Offerings: Role of Discretionary Accounting Accruals

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Abstract

This study examines the role of pre-IPO discretionary accruals in the valuation and underpricing of IPOs. We find that IPO offer price is unaffected whereas market closing price is positively associated with the levels of pre-IPO discretionary accruals for issuers with aggressively reported earnings. We also find that this relative over-valuation of managed earnings by the markets explains a portion of the initial return that is not explained by other known determinants. For issuers with conservatively reported pre-IPO earnings, there is *no* relation between discretionary accruals and the offer price or the market price, and the discretionary accruals do not explain any IPO underpricing. These findings suggest that markets do not seem to understand the implications of aggressively reported earnings on pricing of IPOs.

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I. Introduction and Summary

The initial public offering (henceforth, IPO) is a unique event in the history of a company because it is valued by two distinct sets of external investors for the first time on this date. A well-documented and heavily researched phenomenon associated with the valuation of IPOs is that the IPOs are underpriced (Ibbotson, 1975). Loughran and Ritter (2004) find that the average *Initial Return*, the scaled difference in the first day closing price and the offer price, is non-negative for all 23 years examined and that the amount of underpricing is as high as 71.7% (in 1999).[1] Because the closing price and the offer price are determined by the markets and the underwriters on the issuing date, several studies have tried to identify potential sources for this valuation discrepancy, such as partial adjustment of information learned during the registration period (Lowry and Schwert, 2002), buying positive analyst coverage (Cliff and Denis, 2004), ownership structure (Ljungqvist and Wilhelm, 2003; Hill, 2006), and behavioral explanations such as investor sentiment (Ljungqvist, Nanda, and Singh, 2006) and prospect theory (Loughran and Ritter, 2002). Despite these explanations for "money left on the table," the large magnitude of the *positive* initial return remains a conundrum in the literature (Ljungqvist, 2007).

This study identifies an additional source of this positive initial return, namely, earnings management prior to the IPO. Though studies have examined the role of earnings in IPO valuation (Purnanandam and Swaminathan, 2004; Aggarwal, Bhagat, and

Rangan, 2009), no prior study has examined the effect of *pre-IPO* earnings management on the initial return and the valuation of IPOs by the underwriters or the markets. Recent studies provide clear and convincing evidence that the earnings are managed upwards prior to the IPO (Darrough and Rangan, 2005; Guo, Lev, and Shi, 2006; Zheng and Stangeland, 2007)[2]. If the markets (underwriters) are "functionally fixated" on the reported earnings and the earnings growth number, they can overpay (set a higher offer price) for the IPO stock if the pre-IPO earnings are managed upwards through discretionary current accruals (Sloan, 1996). Because the underwriters are privy to additional private information on the underwriting firm and engage in due diligence on behalf of investors, they face relatively lesser information asymmetry than the markets in general. We would, therefore, expect the underwriters to be less influenced by earnings and earnings management (through accruals) than the investors. The investors' higher reliance on reported earnings and the underwriters' ability to better see through the management of earnings could lead to this additional source of underpricing of the IPOs. We hypothesize that the larger the earnings management, the larger the extent of underpricing. As such, we test if earnings management can explain part of this well-documented IPO underpricing anomaly.

Our empirical findings show that firms with pre-IPO positive discretionary accruals (aggressive reporters) tend to have higher initial returns, whereas *no* such association exists for firms with negative discretionary accruals prior to the IPO. These findings are consistent with underwriters and markets valuing discretionary accruals differently for aggressive reporters. In our subsequent analysis, we develop the underwriters' and the markets' IPO valuation model that incorporates the role of

discretionary current accruals. Our results show that in the valuation of firms that manage earnings upwards, the underwriters do not assign any weight whereas the markets assign a positive weight to discretionary current accruals. Using a seemingly unrelated regressions approach, we test and find that the weight assigned to discretionary accruals by the markets is *significantly* larger than the one assigned by the underwriters. These findings are consistent with underwriters being able to see through the implication of earnings management through discretionary accruals on current and future earnings, but markets do not. For firms with negative pre-IPO discretionary accruals, we find no relation between (a) discretionary accruals and initial returns, (b) discretionary accruals and market valuation, and (c) discretionary accruals and underwriter valuation, as well as (d) no significant difference in underwriter and market valuations of discretionary accruals.

This study makes several contributions to the literature. It is the first study that examines the role of pre-IPO discretionary accruals in the valuation of IPOs – both by the underwriters and by the markets. No prior study has examined earnings management prior to the IPO and its effect on IPO valuation. Second, by documenting that the upwards management of earnings through discretionary current accruals has no effect on the offer price but positively affects the first day closing price, this study explains a portion of the positive initial returns documented in the literature. Finally, for firms that are conservative in reporting earnings prior to the IPO, we find no negative impact on their valuations by the underwriters or the markets.

II. Hypothesis Development

It has been well documented in finance literature that IPO shares are, on average, underpriced relative to the first day closing price (Ibbotson, 1975). Most of the underpricing theories are based on asymmetric information between investors and issuers. These models either assume that the issuer is more informed than the investors (Welch, 1989; Allen and Faulhauber, 1989; Booth and Smith, 1986) [3], or that some investors are more informed than the issuers (Rock, 1986; Beatty and Ritter, 1986; Benveniste and Spindt, 1989).[4] Lowry and Schwert (2002) empirically test IPO initial returns across firms and document that offer price is only partially adjusted with respect to IPO underpricing. They also incorporate Loughran and Ritter's (2002) finding that price adjustment to publicly available information is also partial. Loughran and Ritter (2004) examine reasons behind underpricing changes over time and propose three non-mutually exclusive explanations: change in risk composition, realignment of incentives, and changing issuer objective function.

Purnanandam and Swaminathan (2004) question if the IPOs are really underpriced. Using the industry peer price multiples approach to valuation, they find that both the offer price and the first day closing prices far exceed the implied prices, with the markets assigning much higher multiples than the underwriter (offer price). These results are inconsistent with underpricing predicted by most rational pricing models but are consistent with the documented long-run underperformance of IPOs. They find that the level of earnings, accruals, and earnings growth forecasts are positively associated with the valuation of the IPO firm. However, they do not examine the role of discretionary accruals, used for upward management of earnings, on the IPO offer or the closing prices. One potential explanation for this observed initial overpricing could be that the markets

and underwriters interpret the same fundamental variables differently, especially those that are prone to manipulation by the managers.

In the context of IPO valuation, several other studies examine the role of earnings and other accounting information. Klein (1996) identifies pre-IPO earnings per share and the pre-IPO book value per share as positively related to the prices of the 193 IPOs examined. Hand (2003), Bartov, Mohanram, and Seethamraju (2002), and more recently Aggarwal, Bhagat, and Rangan (2009) examine valuation of IPOs during the internet bubble and identify additional accounting variables – namely, cash flows, sales, and R&D – to be relevant to IPO valuation. The analysis of cash flow, accrual, and transitory earning components is important from a financial statement analysis and valuation point of view. Removing transitory accruals/deferrals to arrive at permanent earnings ensures predictability of future earnings from current earnings. The underlying reason for this separation is that these components of earnings have differential long-term persistence and, hence, different impacts on forecasting future earnings. As argued and documented by Sloan (1996), this lack of understanding in the properties of the components of earnings can result in mispricing of a firm's stock. Sloan (1996) documents that a firm with high current accruals will exhibit lower earnings persistence and these differences in persistence can be used to earn abnormal returns. A subsequent extension of this line of research has concluded that abnormal accruals are mispriced as well (Cheng and Thomas, 2006; Desai, Rajgopal, and Venkatachalam, 2004; Xie, 2001)[5].

The issue of earnings management through accruals to achieve strategic outcomes has been extensively examined in the accounting and finance literature. Most of these studies try to identify a motive, such as meeting dividend thresholds (Daniel, Denis, and

Naveen, 2008) or achieving favorable valuations around important events such as acquisitions (Bergstresser, Desai, and Rauh, 2006; Louis, 2004) and open-market repurchases (Gong, Louis, and Sun, 2008) that earnings management helps achieve. In the context of IPOs, Aharony, Lin, and Loeb (1993), using a small sample of 229 IPOs from 1995-1997, find no earnings management prior to the issuance of IPOs. They find very little evidence of earnings management for small firms or for large firms with significant financial leverage. Friedlan (1994), using a sample of 211 IPOs from 1981-1984, finds evidence of earnings manipulation prior to the issuance of IPOs.

Teoh, Welch, and Wong (1998) publish the first large sample study on the role of discretionary current accruals in IPO underperformance. They show that IPO-year (not the pre-IPO) abnormal accruals are manipulated and that higher levels of discretionary accruals are systematically associated with lower levels of future abnormal returns. Ball and Shivakumar (2008) and Armstrong, Foster, and Taylor (2008) have raised concerns about the use of accruals as a means to earnings management in highly scrutinized environments such as that of IPOs, and they show that the pre-IPO accruals are negative, consistent with earnings conservatism. Armstrong, Foster, and Taylor (2008), using a very simple valuation model, find that the IPO issue price is decreasing in accruals and discretionary accruals, and so is the executive compensation. They conclude this finding as a lack of motive for earnings management prior to the IPO.

Though earnings conservatism around highly scrutinized events such as IPOs is a plausible argument, there is considerable evidence that litigation risk or public scrutiny alone is not sufficient enough for firms to refrain from earnings management. Prior studies have documented pervasive earnings management in similar high scrutiny

settings, such as seasoned equity offerings (Teoh, Welch, and Wong, 1998a; DuCharme, Malatesta, and Sefcik, 2004), acquisitions (Bergstresser, Desai, and Rauh, 2006; Erickson and Wang, 1999; Louis, 2004), and open-market repurchases (Gong, Louis, and Sun, 2008). These findings suggest that extant public scrutiny is not a sufficient deterrent to earnings management through the flexibility permissible under GAAP. Further, the finding of average/median accruals being negative prior to the IPOs is consistent with earnings conservatism, but only on average. We argue that this evidence suggests that there are more firms that are potentially conservative than aggressive in their financial reporting practices prior to the IPO and that we need to examine them separately.

Some of the recent studies that examine specific industries or a specific source of earnings manipulation provide corroborating evidence. For instance, for a sample of technology firms in a period extending from 1986-1990, Darrough and Rangan (2005) document downward manipulation of R&D expenditures and discretionary current accruals in the year of the IPO by managers that sell the stock. Guo, Lev, and Shi (2006) reach similar conclusions in the context of high-tech firms. Zheng and Stangeland (2007) examine IPO underpricing and firm quality. They find that IPO underpricing is positively related to post-IPO growth in sales and EBITDA, but is not related to growth in earnings. This discrepancy could be explained by the reversals of accruals in future years. IPOs with greater underpricing are also found to be associated with larger decreases in accruals after the first year. The findings of Zheng and Stangeland (2007) also support the notion of earnings management prior to the IPO.

Accruals Mispricing and the Initial Returns Hypothesis: If issuers use accruals and deferrals related to working capital accounts to inflate earnings and both the underwriters

and the markets fail to understand these manipulations, we would expect their valuations to be higher for IPOs with higher discretionary accruals. However, if underwriters see through the management of earnings because of access to additional information, we would expect the underwriter valuation to be downwardly (upwardly) adjusted vis-à-vis earnings for firms with higher (lower) levels of discretionary accruals. Because the underwriters have the incentive to undervalue the IPO in any case, markets may not be able to decipher this type of underpricing effect from one that is strictly due to higher accruals. Because higher discretionary accruals result in lower valuations vis-à-vis earnings, we would expect the initial returns to be higher for these firms. Stated in alternate form, our two hypotheses are as follows:

Hypothesis 1: *IPO initial return is higher for firms with higher levels of discretionary current accruals.*

Hypothesis 2: *Markets assign a higher weight to discretionary current accruals than the underwriter in the valuation of IPOs.*

III. Sample Formation and Variable Definitions

A. Sample Formation: We identify our initial sample of issuing firms by selecting all firms that completed an initial public offering between January 1990 and December 2004. Because of concerns related to accruals measurement using the balance sheet approach and lack of statements of cash flow data, all IPOs prior to 1990 are eliminated.[6] Offering details are obtained from the Thomson Financial SDC Platinum (SDC) database. Firm-specific financial statement information is obtained from the active and research files of Industrial COMPUSTAT. Market stock return information is obtained from the Center for Research and Securities Prices (CRSP) database. To be included in our sample, each IPO must satisfy the following sample selection criteria:

- The IPO is not a unit offering, closed-end fund, real estate investment trust (REIT), American depository receipt (ADR), or penny stock (an IPO with offer price below five dollars).
- The IPO has information on cash flows from operations (items #308 & #124), net income (item #18), and total assets (item #6) – available in Compustat industrial files for the current year and the prior two fiscal years (to enable computation of discretionary current accruals in the year prior to the IPO year).

B. Variable Definitions: We identify known determinants of initial returns and IPO valuation, and construct variables based on their definitions in prior studies. For instance, following Lowry and Schwert (2002) and Cliff and Denis (2004), we construct price revision and underwriter rank in our underpricing model. Similarly, we construct fundamental accounting variables (sales, book values, income, and R&D expenses) as transformed in Hand (2003) to specify the underwriter and market valuation model. The following variables are used in our model specifications:

1. *IR*: Initial return or underpricing, equals the percentage change in offer price at the end of first trading day. Offer price is obtained from SDC, and the first trading day closing price is obtained from CRSP.
2. *RANK*: Underwriter rank is based on Carter, Dark, and Singh (1998) and is updated based on Loughran and Ritter (2004);
3. *BIG8*: Equals one if the issuing firm was audited by one of the big eight accounting firms;
4. *LOGAST*: Log of the total assets of the firm at the end of the fiscal year prior to the fiscal year of issuance (Compustat item #6);

5. *VC*: Equals one if the issuing firm is venture-backed, zero otherwise;
6. *NYSE*: Equals one if the IPO is listed on the New York Stock Exchange, zero otherwise;
7. *NMS*: Equals one if the IPO is listed on the NASDAQ National Market System, zero otherwise;
8. *AMEX*: Equals one if the IPO is listed on the American Stock Exchange, zero otherwise;
9. *TECH*: Equals one if the IPO is in a high tech industry, zero otherwise;
10. *CHANGEP*: The percentage change between the middle of the original file price range and the offer price;
11. *CHANGEP+*: Equals *ChangeP* when *ChangeP* is positive, zero otherwise;
12. *MKT*: The return to the CRSP equal-weighted portfolio NYSE-, AMEX-, and NASDAQ-listed stocks for the 21 trading days prior to the offer date;
13. MKT^{+}: Equals *MKT* when *MKT* is positive, zero otherwise;
14. *Fundamental variables* include firm-specific financial statement data. They include (i) *BV*, book value of equity, (ii) *SALES*, sales revenue, and (iii) *R&D*, research and development expenses. All variables are measured one year prior to the IPO year. *INCOME* and *BV*, that can take both positive and negative values, are transformed using the functional form proposed by Hand (2003) and are used in prior studies: L(*variable*) = log (1+*variable*) when the *variable* is greater than or equal to zero; L(*variable*) = –log (1–*variable*) when the *variable* is less than zero;
15. *MEANPS*: The mean of price to sales per share ratio of the IPO firm industry;

16. *INSRET*: Refers to insider retention, defined as (shares outstanding after offering-total shares offered)/shares outstanding after offering based on Zheng and Stangeland (2007);
17. *DCA*: Estimated discretionary accruals using the modified Jones (1991) model. Current accruals are computed as the difference between net income and cash flows from operations, and are adjusted for size using the average of total assets. Expected current accruals, also referred to as non-discretionary accruals, are estimated using current year change in revenue and net property, plant, and equipment (scaled by total assets). The weights assigned to these variables are derived from the regression of current accruals on the change in revenue and net property, plant, and equipment (with all variables scaled by total assets) in the estimation sample of industry peers in the year preceding the IPO. Discretionary current accruals (*DCA*) are computed as the difference between current accruals and non-discretionary current accruals. To compute pre-IPO discretionary current accruals, we need two years of data prior to the IPO year for estimation.
18. *POS_DCA*: *POS_DCA* equals *DCA* when *DCA* is positive; zero otherwise.
19. *NEG_DCA*: *NEG_DCA* equals *DCA* when *DCA* is negative; zero otherwise. We create two variables, *POS_DCA* and *NEG_DCA*, based on the sign of the discretionary current accruals. *POS_DCA* (*NEG_DCA*) equals *DCA* when *DCA* is positive (negative) and zero otherwise. These variables allow for asymmetric response to earnings management on IPO underpricing and valuation. In the context of audit quality, Ashbaugh, LaFond, and Mayhew (2003) show that this separation of positive and negative discretionary accruals better captures the potential asymmetric

relation between the variable of interest (in our case, underpricing) and earnings management.

20. *LOGOFFER*: Log of IPO offer price.
21. *LOGPRC*: Log of IPO first day closing price.

C. Data Description: We construct samples based on availability of firm-specific financial data from COMPUSTAT to estimate the reported and discretionary current accruals. Our initial sample consists of *962* IPOs between January 1990 and December 2004 that meet the stated sample selection criteria. As done in all prior studies, we trim the sample of outliers to obtain more consistent and compelling evidence on the impact of accruals. We remove the highest 1% influential outliers observations based on the approach of Belsley, Kuh, and Welsch (1980) in our regression model, and present descriptive statistics on the sample of *952* IPOs. Table I presents a breakdown of our sample by the two-digit standard industry classification (SIC) codes with the most IPOs. The Computer Hardware and Software industry (SIC codes 35 & 73) has the highest number of IPOs (*273*), representing *28.68*% of our IPO sample. Because of the extensive level of IPO activity in the technology industry and its association with the IPO bubble years, we identify and control for these *273* IPOs as technology IPOs in our subsequent analysis. Eighteen industries with very low frequencies of IPOs are classified into the *All Other* category, representing *10.61*% of all IPOs. The remaining IPOs are assigned to the remaining industries.

Table II presents the descriptive statistics on the key variables of interest by year. The highest level of IPO activity is in the year 1997 (*183* IPOs), whereas the lowest is in

1991 (three IPOs), consistent with the idea of hot-IPO markets. The average first day returns are positive for all years, with the highest average first day initial returns (*64.45*%) in the midst of the internet market bubble in 1999. The gross average proceeds from IPOs are the highest in 2001 ($*275.52* million) and the lowest in 1990 ($*48.27* million). Average net income of the issuers ranges from a loss of $*27.95* million in 1994 to profits of $*95.7* million in 2001. Cash flows from operations range from an outflow of $*10.28* million in 2003 to an inflow of $*109.57* million in 2001. From our descriptive summary, IPOs that take place in down markets (mainly years 2001-2002) are for larger firms (larger in total assets, on average) that are also more profitable (higher net income cash flows from operations). IPOs issued in the boom period (mainly 1997-1999) seem to have opposite firm characteristics.

The mean *DCA* pooled all years is *-0.19*. This is consistent with the findings of prior studies (Ball and Shivakumar, 2008; Armstrong, Foster, and Taylor, 2008) that the average discretionary current accruals (*DCA*), estimated using the modified Jones model, are largely negative. A firm with negative (positive) *DCA* is more conservative (aggressive) in using its discretionary current accruals to report lower (higher) earnings. More often than not, IPO firms report negative average discretionary accruals. Panel B of Table II presents the magnitude of the average *DCA* and the count of firms with positive and negative *DCA*. Overall, slightly less than half the firms (*42.23*%) report positive discretionary current accruals. However, the percentage of firms with positive and negative DCA is non-stationary over time. In four out of 15 years, at least half or more than half of the firms report positive average discretionary accruals. These proportions indicate that positive earnings management is more pervasive than what the

overall averages would suggest. This non-stationary proportion of negative *DCA* firms suggests that earnings manipulation prior to IPOs varies by period examined and that the claim of *no* earnings management prior to the IPO needs a more careful examination.

Table III presents coefficients of correlation between the independent and the dependent variables. The Pearson (Spearman) correlation coefficients and their significance levels are presented above (below) the diagonal. At a univariate level, initial return is positively related to all the previously identified variables (offer price revision, underwriter ranking, previous market returns) as well as to the fundamental accounting variables such as R&D expenses. There is also a positive and weakly significant correlation between *IR* and *POS_DCA*, and a negative and significant correlation between *IR* and *NEG_DCA*. These findings suggest that both of the extreme ends of earnings management tend to receive higher valuation by the markets. Also, the positive correlation between *NEG_DCA* and *INSRET* is notable, consistent with higher quality earnings associated with high insider retention. In the valuation context, there is no correlation of *DCA*, *POS_DCA,* and *NEG_DCA* with both the *LOGOFFER* and *LOGPRC*, suggesting no association between accruals and the pricing of the IPOs at the univariate level of analysis. Additional controls are needed to fully understand the nature of the relation between these variables.

IV. Empirical Results

A. Accruals Mispricing and Initial Return Tests

We test Hypothesis 1 on the relation between initial returns and discretionary accruals by estimating the ordinary least square (OLS) regression model at the firm level with initial returns as the dependent variable. Our model specification is as follows:

$$IR_{i,t} = \alpha + \beta_1 DCA_{i,t-1} + \beta_2 RANK_{i,t} + \beta_3 BIG8_{i,t} + \beta_4 VC_{i,t} + \beta_5 LOGAST_{i,t-1} + \beta_6 NYSE_{i,t} + \beta_7 NMS_{i,t} + \beta_8 AMEX_{i,t} + \beta_9 TECH_{i,t} + \beta_{10} ChangeP_{i,t-1} + \beta_{11} ChangeP^{+}_{i,t-1} + \beta_{12} MKT_{i,t-1} + \beta_{13} MKT^{+}_{i,t-1} + \beta_{14} INSRET_{i,t} + \beta_{15} (BV)_{i,t-1} + \beta_{16} L(SALES)_{i,t-1} + \beta_{17} L(R\&D)_{i,t-1} + \beta_{18} MEANPS_{i,t-1} + Year\ Dummies_{i,t} + \varepsilon_{i,t} \quad \textbf{(1)}$$

The main variable of interest is *DCA*, the discretionary current accruals in the fiscal year prior to the IPO fiscal year. Firms with DCA greater than zero (*POS_DCA*) have accruals that exceed its "normal" levels, based on the industry benchmarks, by the magnitude of the *DCA*. These firms can be viewed as aggressive in recognizing income. Conversely, firms with negative *DCA* (*NEG_DCA*) are conservative in reporting their earnings and have accruals below "normal" industry norms. *LOGAST*, natural log of the firms' total assets, provides a control for firm size[7] and an inverse proxy of uncertainty faced by investors (Habib and Ljungqvist, 1998; Lowry and Schwert, 2002). Lowry and Schwert (2002) and Cliff and Denis (2004) suggest that listing exchange affects IPO initial return. *NYSE*, *NMS*, and *AMEX* are dummy variables that control for this documented exchange effect. *TECH* is a dummy variable that equals one when a firm is involved in a high-tech industry, and zero otherwise. IPOs are assigned this classification by the SDC Platinum Database, which is based on the SIC of the issuer (computer equipment, electrical machinery, etc.). This separation is created because prior studies have found significant differences in initial returns across firms that belong to technology

versus non-technology industries (Lowry and Schwert, 2002; Cliff and Denis, 2004). We also include an insider retention percentage, as calculated in Zheng and Stangeland (2007). Fan (2007) also proposes that earnings management and ownership retention jointly affect the valuation of IPOs in the presence of information asymmetry.

Prior studies have also documented that the initial return varies by changes in original file price and the offer price. Hanley (1993), Lowry and Schwert (2002), and Cliff and Denis (2004) show that the higher the percentage change in file price, the higher the initial return. In other words, these studies document that initial returns are significantly larger for positive revisions. Therefore, we include two variables, *ChangeP* and $ChangeP^{+}$, to control for the price revision effect. Loughran and Ritter (2002) find that price adjustment to publicly available information is also partial. Market activity prior to the issuance of the IPO, a measure of public information, is captured by computing the returns on CRSP equal-weighted portfolios of NYSE-, AMEX-, and NASDAQ-listed stocks for the 21 trading days preceding the offer date. Again, to allow for asymmetric effects on initial returns associated with negative and positive market returns, both *MKT* and *MKT+* are included in the regression specification.

Leland and Pyle (1977) show that firm valuation is positively related to the levels of insider retention by the entrepreneur. An entrepreneur's decision to forgo the benefits of diversification with high stock retention comes from the signaling model that provides superior insider information about expected future profits of the firm than what is available to the average investor. Furthermore, higher stock retention aligns the incentives of the principal (entrepreneur) and agent (investors), avoiding the moral hazard problem. Other ways in which entrepreneurs can signal the quality of the IPO can

include selection of reputable auditors (Feltham, Hughes, and Simunic, 1991) and/or underwriters. Xie, Lee, and Zhou (2009) argue that auditors and venture capitalists can also play different roles in restraining earnings management in the IPO process. Auditors check the accuracy of financial statement information, and venture capitalists play a monitoring and advising role through the IPO. Underwriter reputation is a known factor that affects initial returns (Carter, Dark, and Singh. 1998; Loughran and Ritter, 2004).

We control for IPO quality using variables used in the prior research–*INSRET* as a measure of insider stock retention; *BIG8,* a dummy variable to separate IPOs audited by the eight most reputed auditors; and *VC,* IPOs backed by the venture capitalists. We also use underwriter reputation rank as developed in Carter, Dark, and Singh (1998) and later updated in Loughran and Ritter (2004). This *Rank* variable takes a value of one for lesser known investment banking firms and a value of nine for the best known names in the underwriting business; others are ranked in between these two categories.[8] Because fundamental accounting variables can affect valuation and initial returns, we include sales revenue (*SALES*), book value of equity (*BV*), and Research and Development Expenses (*R&D*) in select specifications. We pool the data on all IPOs over the 15-year period in estimating the model.[9]

Table IV presents results from the estimation of model (1). Columns one and two, respectively, present results without and with the fundamental accounting variables included in the specification. To capture the possibility of an asymmetric impact of aggressive and conservative reporting on the initial return, we replace *DCA* with *POS_DCA* and *NEG_DCA* in specification (1) and present the results without and with the fundamental accounting variables in columns three and four, respectively. The

goodness of fit for all models is very similar (adjusted R^2 around 48%) and so are the magnitudes and significance of most of the variables. $CHANGEP^+$ is significant at the 0.01 level for all four models, consistent with the findings of Cliff and Denis (2004) and Lowry and Schwert (2002). In specifications with *DCA*, the coefficient is positive but not significantly different from zero at conventional levels of significance (0.05 or better) for both the specifications. These results suggest no association between initial return and the levels of pre-IPO discretionary current accruals. When *DCA* is split by sign, the coefficients for *POS_DCA* are 3.1577 and 3.3473, respectively, in specification with and without the fundamental accounting variables. Both coefficients are positive and significantly different from zero at conventional levels of significance (0.05 or better). These results suggest that the firms that manage earnings upwards through accruals tend to have higher initial returns. For these firms, a unit increase in the level of discretionary accruals translates into a one basis point increase in return on assets above and beyond the industry average through management of accruals. Thus, a one basis point improvement in return on assets through accruals translates into a 3.2% to 3.3% increase in initial returns. These results indicate significant payoffs from the management of earnings. The coefficient for *NEG_DCA* is not significantly different from zero. These results suggest that for conservative issuers, there is no significant difference in the valuation of discretionary accruals. Either both the underwriters and markets do not assign any weight to discretionary accruals or they both assign very similar weights. To further understand earnings management prior to the IPOs as source of underpricing, we develop a specification of the IPO valuation model for underwriters (hired by the issuer

to propose or validate firm value) and market participants (who participate in first day trading). We estimate the following two equations:

$$LogOffer_{i,t} = \alpha + \beta_{1o}POS\_DCA_{i,t-1} + \beta_{2o}NEG\_DCA_{i,t-1} + \beta_{3o}(BV)_{i,t-1} + \beta_{4o}L(Sales)_{i,t-1} + \beta_{5o}L(R\&D)_{i,t-1} + \beta_{6o}Mean\ PS_{i,t-1} + \beta_{7o}Insider_{i,t} + \beta_{8o}Rank_{i,t} + \beta_{9o}Big8_{i,t} + \beta_{10o}VC_{i,t} + \beta_{11o}Logast_{i,t-1} + \beta_{12o}NYSE_{i,t} + \beta_{13o}NMS_{i,t} + \beta_{14o}AMEX_{i,t} + \beta_{15o}TECH_{i,t} + \beta_{16o}ChangeP_{i,t-1} + \beta_{17o}ChangeP^{+}_{i,t-1} + \beta_{18o}MKT_{i,t-1} + \beta_{19o}MKT^{+}_{i,t-1} + Year\ Dummies_{i,t} + \varepsilon_{io,t} \quad \textbf{(2.1)}$$

$$LogPrc_{i,t} = \alpha + \beta_{1m}POS\_DCA_{i,t-1} + \beta_{2m}NEG\_DCA_{i,t-1} + \beta_{3m}(BV)_{i,t-1} + \beta_{4m}L(Sales)_{i,t-1} + \beta_{5m}L(R\&D)_{i,t-1} + \beta_{6m}Mean\ PS_{i,t-1} + \beta_{7m}Insider_{i,t} + \beta_{8m}Rank_{i,t} + \beta_{9m}Big8_{i,t} + \beta_{10m}VC_{i,t} + \beta_{11m}Logast_{i,t-1} + \beta_{12m}NYSE_{i,t} + \beta_{13m}NMS_{i,t} + \beta_{14m}AMEX_{i,t} + \beta_{15m}TECH_{i,t} + \beta_{16m}ChangeP_{i,t-1} + \beta_{17m}ChangeP^{+}_{i,t-1} + \beta_{18m}MKT_{i,t-1} + \beta_{19m}MKT^{+}_{i,t-1} + Year\ Dummies_{i,t} + \varepsilon_{im,t} \quad \textbf{(2.2)}$$

Both equations (2.1) and (2.2) are specified using the same independent variables. The Nx1 vector of random error terms is assumed to have a mean of zero, but different variance, as follows:

$$\varepsilon_{io} \sim N(0, \sigma_o^2)$$

$$\varepsilon_{im} \sim N(0, \sigma_m^2)$$

Because both equations involve valuation of the same set of IPOs, the errors terms in these two equations will be correlated across firms. These equations fit into the seemingly unrelated regressions (SUR) framework proposed by Zellner (1962). When

estimated as stacked equations, the disturbances term will have the following variance-covariance structure:

$$\Omega = \Sigma \otimes I_N$$

$$\text{Where } \Sigma = \begin{bmatrix} \sigma_o^2 & Cov\,(\varepsilon_{io}, \varepsilon_{im}) \\ Cov\,(\varepsilon_{io}, \varepsilon_{im}) & \sigma_m^2 \end{bmatrix},$$

where I_N is an identity matrix of size N, and $\otimes$ is the Kronecker product.

This structure results in more efficient estimates of covariance across equations, and enables us to test for the significance of differences in the magnitude of coefficients across equations (Greene, 2008). We estimate equations 2.1 and 2.2 jointly, and the estimation results appear in Table V. The results from the underwriter (market) valuation model, with log of offer price (market price) as the dependent variable, appear in the first (second) column. The coefficients of the fundamental variables, *SALES* and *R&D*, are significant in both the underwriter and the market valuation models, consistent with the finding of prior studies. Underwriter reputation proxy, *RANK,* and auditor reputation indicator, *BIG8*, both positively affect the offer and market prices. The discretionary accruals, regardless of the sign, have no effect on the underwriter offer price because the coefficients for both *POS_DCA* and *NEG_DCA* are not significantly different from zero. In the market valuation model, the coefficient of *POS_DCA* is positive and significant, whereas the one for *NEG_DCA* is not at conventional levels of significance (0.05 or better). In the tests of significance of difference in coefficients across equations, the magnitude of *POS_DCA* is significantly larger in the market valuations. These results suggest that underwriters see through the impact of aggressively reported earnings on valuation, whereas markets fail to do so. The findings in Table V provide sufficient evidence to reject the null Hypothesis 2 in favor of the alternate that the markets assign

higher weights to discretionary current accruals than underwriters in the valuation of IPOs.

V. Conclusions

Prior studies have examined and found evidence of earnings management to achieve certain strategic outcomes. However, in the context of IPOs, the evidence of some recent studies has been mixed, leading to the conclusion that earnings management does not exist prior to the IPO. We find that the result of negative mean pre-IPO discretionary accruals is non-stationary when examined over time and that the proportion of firms engaging in earnings management is not that small in any year. The mean accruals are even positive in certain other years, with manipulation being quite widespread in some years. Our examination of firms that manage earnings upwards reveals that these firms receive a higher initial return on the day of the IPO. On average, a one basis point improvement in ROA from upward manipulation of discretionary accruals results in a 3.22% improvement in first day initial returns. This improvement is substantial compared to the overall magnitude of initial returns.

Under no circumstances do underwriters assign any weight to discretionary accruals in their valuation of the IPOs. This is consistent with underwriters being able to see through earnings management and the impact of accruals on current and future earnings. This differential valuation of discretional accruals could also be driven by the difference in information asymmetry faced by the markets and underwriters. Underwriters who are privy to additional information are better able to see through earnings management or rely on other factors (or both) than the markets.

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Table I
Sample Characteristics

The sample consists of 952 IPO firms going public during the period of 1990-2004 as listed in the Securities Data Company (SDC) database. IPOs that are ADRs, units, REITs, offer price less than $5, and closed-end funds are excluded. The distribution of the sample is reported by two-digit Standard Industry Classification (SIC) code.

SIC Distribution			
Industry	Two-digit SIC Codes	Freq.	%
Oil and Gas	13, 29	18	1.89%
Food Products	20	18	1.89%
Paper and Paper Products	24-27	20	2.10%
Chemical Products	28	86	9.03%
Manufacturing	30-34	28	2.94%
Computer Hardware & Software	35, 73	273	28.68%
Electronic Equipment	36	81	8.51%
Transportation	37, 39, 40-42, 44, 45	46	4.83%
Scientific Instruments	38	85	8.93%
Communications	48	41	4.31%
Electric and Gas Services	49	7	0.74%
Durable Goods	50	16	1.68%
Retail	53, 54, 56, 57, 59	41	4.31%
Eating and Drinking Establishments	58	17	1.79%
Financial Services	61, 62, 64, 65	46	4.83%
Entertainment Services	70, 78, 79	11	1.16%
Health	80	17	1.79%
All others	1, 14, 15, 16, 17, 22, 23, 46, 47, 51, 52 55, 63, 67, 72, 82, 87, 99	101	10.61%
Total		952	100.00%

Table II
Time Distribution and Descriptive Statistics

The sample consists of 952 IPO firms going public during the period of 1990–2004 as listed in the Securities Data Company (SDC) database. IPOs that are ADRs, units, REITs, offer price less than $5, and closed-end funds are excluded. The distribution of the sample is reported in Panel A by year.

Panel A: Descriptive Statistics by Year.
This table presents the time distribution means and medians first day return (%), proceeds (in millions), money left on table (in millions; defined as the difference between first day close price and offer price multiplied by shares offered), total assets (in millions), net income (in millions), cash flow from operation (in millions), and discretionary current accruals (DCA) based on the modified Jones (1991) model.

		Mean							Median						
Year	No. of IPOs	Initial Return	Proceeds	Money on the Table	Total Assets	Net Income	Cash Flow Operation	DCA	Initial Return	Proceeds	Money on the Table	Total Assets	Net Income	Cash Flow Operation	DCA
1990	11	9.10	48.27	2.29	108.09	3.96	9.20	1.29	3.80	28.50	0.95	28.10	1.92	1.71	0.09
1991	3	0.00	101.10	0.00	301.82	-1.68	29.06	-0.05	0.00	74.30	0.00	286.98	-0.71	25.11	-0.06
1992	26	8.85	87.08	8.03	253.20	6.89	24.92	-0.01	6.39	50.35	2.94	123.69	1.15	8.47	-0.01
1993	28	5.42	93.61	5.63	1,009.28	18.32	30.04	-0.02	2.32	67.80	1.03	240.86	2.10	16.07	-0.02
1994	18	5.10	65.27	1.68	513.99	-27.95	-1.68	-0.03	2.86	28.75	0.25	75.94	-0.59	5.22	0.00
1995	9	6.96	168.22	12.55	1,715.14	-6.66	82.49	-0.03	6.06	62.00	2.51	217.21	-4.07	20.46	-0.01
1996	24	9.49	61.48	3.99	221.48	1.08	8.48	-0.29	9.08	42.00	1.69	48.38	1.49	3.88	0.02
1997	183	14.36	56.48	7.60	309.39	10.75	28.39	-0.04	9.40	33.00	2.43	21.97	1.13	1.42	-0.03
1998	119	23.87	85.25	14.42	235.41	0.37	8.31	-0.03	10.00	37.50	2.24	31.24	0.51	0.34	0.00
1999	107	64.45	110.90	44.00	187.22	-3.64	10.04	-0.05	34.06	52.70	17.10	24.05	-3.20	-0.40	-0.05
2000	168	51.18	105.39	47.76	222.54	-7.16	7.19	-0.66	27.10	66.80	17.96	25.58	-7.89	-4.50	-0.07
2001	49	15.04	275.52	15.56	1,781.01	95.70	109.57	-0.91	8.33	72.70	7.32	83.19	0.24	3.32	-0.02
2002	37	6.77	187.58	12.51	460.73	17.24	46.60	0.00	6.33	97.10	4.10	162.02	1.54	8.05	-0.01
2003	37	12.64	149.63	12.39	661.37	3.77	-10.28	0.11	10.71	115.50	11.54	196.40	5.24	12.85	0.05
2004	133	12.37	148.18	17.09	534.59	0.49	31.00	-0.11	7.74	79.60	3.95	62.31	-0.45	4.03	-0.05
Total	952	26.18	110.95	21.58	429.49	6.45	23.00	-0.19	11.08	55.50	4.79	37.08	-0.08	1.13	-0.03

Panel B: Descriptive Statistics on positive and negative DCA

This table shows the distribution of discretionary current accruals (DCA). Pos. DCA refers to the number of IPOs with DCA greater than zero in the year prior to IPO; Neg. DCA refers to the number of IPOs with negative DCA in the year prior to IPO. % Positive and % Negative show the percentage distribution of DCA on IPO issuance for the year. The mean and median, based on whether DCA is positive or negative, are also presented in this panel.

Panel B: Descriptive Statistics on Positive and Negative DCA

Year of the IPO	No. of IPOs	IPO with Pos. DCA	% IPO Pos. DCA	Pos. DCA Mean	Pos. DCA Median	IPO with Neg. DCA	% IPO Neg. DCA	Neg. DCA Mean	Neg. DCA Median
1990	11	6	54.55%	2.6867	0.5591	5	45.45%	-0.3860	-0.1907
1991	3	0	0.00%	0.0000	0.0000	3	100.00%	-0.0531	-0.0620
1992	26	10	38.46%	0.0608	0.0183	16	61.54%	-0.0568	-0.0393
1993	28	9	32.14%	0.0365	0.0228	19	67.86%	-0.0494	-0.0341
1994	18	9	50.00%	0.1240	0.0637	9	50.00%	-0.1770	-0.0427
1995	9	2	22.22%	0.2641	0.2641	7	77.78%	-0.1158	-0.0518
1996	24	13	54.17%	0.1101	0.0738	11	45.83%	-0.7709	-0.0681
1997	183	75	40.98%	0.3037	0.1471	108	59.02%	-0.2792	-0.1179
1998	119	59	49.58%	0.4538	0.1167	60	50.42%	-0.5147	-0.1492
1999	107	46	42.99%	0.5515	0.1545	61	57.01%	-0.5121	-0.1451
2000	168	57	33.93%	0.3102	0.1240	111	66.07%	-1.1544	-0.6386
2001	49	21	42.86%	0.1797	0.0994	28	57.14%	-1.7343	-0.1127
2002	37	17	45.95%	0.2177	0.0905	20	54.05%	-0.1922	-0.1057
2003	37	27	72.97%	0.2070	0.0611	10	27.03%	-0.1344	-0.0669
2004	133	51	38.35%	0.5302	0.1593	82	61.65%	-0.5052	-0.2257
Total	952	402	42.23%	0.3802	0.1120	550	57.77%	-0.6007	-0.1352

Table III
Correlation on Variables of Interest

This table presents the Pearson product-moment (upper-right above diagonal) and Spearman rank (lower-left below diagonal) correlation coefficients on variables of interest. See detailed definition of each variable in Section III, Part B.

	IR	LogOffe	LogPrc	DCA	POS_DCA	NEG_DCA	L(Income	L(BV)	L(Sales)	L(RD)	MeanPS	Insider	Rank	Logast	ChangeP	ChangeP+	MKT	MKT+
IR	26.18	0.25	0.69	-0.05	0.06	-0.10	-0.15	-0.11	-0.17	0.13	0.11	0.24	0.04	-0.14	0.58	0.66	0.11	0.15
	50.49	0.00	0.00	0.12	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
LogOffer	0.31	2.56	0.82	0.02	0.00	0.02	0.18	0.19	0.43	0.12	0.00	0.10	0.20	0.52	0.54	0.39	0.09	0.09
	0.00	0.39	0.00	0.58	0.97	0.48	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.01	0.01
LogPrc	0.65	0.89	2.74	-0.02	0.03	-0.04	0.06	0.06	0.21	0.16	0.06	0.18	0.16	0.27	0.68	0.60	0.12	0.13
	0.00	0.00	0.56	0.56	0.36	0.19	0.09	0.07	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DCA	-0.07	0.01	-0.03	-0.19	0.57	0.85	0.11	0.09	0.12	-0.07	-0.08	-0.09	0.11	0.12	-0.04	-0.07	-0.02	-0.02
	0.03	0.87	0.29	1.50	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.01	0.00	0.00	0.18	0.04	0.61	0.45
POS_DCA	-0.02	-0.04	-0.04	0.90	0.16	0.06	0.01	0.00	-0.05	-0.05	-0.02	0.00	-0.03	-0.02	0.02	0.01	-0.09	-0.07
	0.52	0.23	0.21	0.00	0.79	0.08	0.84	0.88	0.12	0.16	0.49	0.98	0.30	0.58	0.49	0.76	0.01	0.03
NEG_DCA	-0.08	0.04	-0.02	0.96	0.85	-0.35	0.13	0.11	0.18	-0.06	-0.08	-0.10	0.16	0.15	-0.07	-0.09	0.03	0.01
	0.01	0.24	0.63	0.00	0.00	1.23	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.04	0.01	0.29	0.67
L(Income)	-0.07	0.16	0.08	0.22	0.14	0.24	-0.13	0.49	0.54	-0.23	-0.25	-0.14	0.02	0.35	-0.05	-0.14	0.00	-0.03
	0.04	0.00	0.02	0.00	0.00	0.00	2.49	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.13	0.00	0.90	0.40
L(BV)	-0.11	0.20	0.11	0.17	0.10	0.21	0.48	0.63	0.41	-0.12	-0.19	-0.09	0.03	0.39	-0.04	-0.10	0.05	0.04
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.35	0.00	0.00	0.00	0.00	0.32	0.00	0.20	0.00	0.14	0.22
L(Sales)	-0.11	0.42	0.26	0.18	0.05	0.24	0.54	0.43	3.81	-0.16	-0.30	-0.15	0.12	0.83	-0.02	-0.10	0.04	0.00
	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.18	0.91
L(RD)	0.12	-0.03	0.05	-0.13	-0.07	-0.14	-0.33	-0.19	-0.33	1.02	0.19	0.28	0.01	-0.02	0.05	0.13	-0.13	-0.09
	0.00	0.39	0.13	0.00	0.02	0.00	0.00	0.00	0.00	1.21	0.00	0.00	0.78	0.44	0.10	0.00	0.00	0.00
MeanPS	0.16	-0.05	0.05	-0.17	-0.05	-0.21	-0.42	-0.29	-0.53	0.43	58.91	0.14	0.02	-0.20	0.06	0.12	-0.04	-0.01
	0.00	0.09	0.11	0.00	0.15	0.00	0.00	0.00	0.00	0.00	121.54	0.00	0.57	0.00	0.06	0.00	0.28	0.70
Insider	0.28	0.14	0.24	-0.10	-0.01	-0.11	-0.14	-0.03	-0.16	0.34	0.29	0.71	0.00	-0.09	0.15	0.22	-0.11	-0.08
	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.31	0.00	0.00	0.00	0.19	0.91	0.00	0.00	0.00	0.00	0.01
Rank	0.04	0.19	0.17	-0.02	0.05	0.01	-0.07	0.01	0.07	0.07	0.04	0.14	7.80	0.18	0.08	0.05	-0.01	0.00
	0.24	0.00	0.00	0.50	0.10	0.70	0.04	0.65	0.03	0.04	0.18	0.00	2.50	0.00	0.02	0.10	0.79	0.98
Logast	-0.11	0.50	0.32	0.13	0.00	0.20	0.31	0.40	0.82	-0.21	-0.37	-0.05	0.17	3.99	-0.02	-0.08	0.02	-0.01
	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	1.80	0.60	0.01	0.52	0.65
ChangeP	0.61	0.60	0.73	-0.04	0.00	-0.05	-0.02	-0.04	-0.01	0.04	0.10	0.19	0.05	-0.02	1.67	0.88	0.24	0.22
	0.00	0.00	0.00	0.22	0.90	0.16	0.63	0.27	0.73	0.25	0.00	0.00	0.12	0.51	24.19	0.00	0.00	0.00
ChangeP+	0.61	0.53	0.67	-0.07	-0.02	-0.07	-0.06	-0.07	-0.05	0.10	0.17	0.26	0.05	-0.04	0.92	9.39	0.19	0.19
	0.00	0.00	0.00	0.03	0.54	0.02	0.05	0.04	0.14	0.00	0.00	0.00	0.14	0.21	0.00	16.95	0.00	0.00
MKT	0.17	0.12	0.15	0.01	-0.04	0.03	0.01	0.04	0.04	-0.14	-0.08	-0.10	-0.06	0.01	0.27	0.25	0.09	0.90
	0.00	0.00	0.00	0.71	0.23	0.39	0.68	0.21	0.17	0.00	0.02	0.00	0.06	0.68	0.00	0.00	0.29	0.00
MKT+	0.18	0.13	0.16	0.00	-0.04	0.02	0.00	0.04	0.03	-0.13	-0.05	-0.09	-0.05	0.01	0.27	0.25	0.98	0.17
	0.00	0.00	0.00	0.88	0.18	0.50	0.96	0.21	0.39	0.00	0.10	0.00	0.16	0.82	0.00	0.00	0.00	0.19

Table IV
Initial Return and Discretionary Current Accruals

Shown here are the cross-sectional regression models for the returns to IPO investors in the U.S. based on SDC data from 1990 to 2004. The dependent variable is the percentage initial return. *DCA* refers to discretionary accruals in the year ***prior*** to IPO. *POS_DCA* (*NEG_DCA*) equals discretionary current accruals when *DCA* is positive (negative), and zero otherwise. *RANK* is the underwriter rank based on Carter, Dark, and Singh (1998) and updated in Loughran and Ritter (2004). *BIG8* is the indicator variable for IPOs audited by the Big 8 public accounting firms. VC equals one if the IPO firm is ventured-backed, zero otherwise. *LOGAST* is the log of total assets. *NYSE* equals one if the IPO firm is listed on the New York Stock Exchange, and zero otherwise. *NMS* equals one if the IPO firm is listed on the Nasdaq National Market Stock Exchange, and zero otherwise. *AMEX* equals one if the IPO firm is listed on the American Stock Exchange, and zero otherwise. *TECH* equals one if the firm is in a high tech industry, and zero otherwise. *CHANGEP* is the price revision between the midpoint of the initial filing range and the final offer price. *CHANGEP+* equals ΔP when price revision is positive, and zero otherwise. *MKT* is the average CRSP equal-weighted index return three weeks prior to issuance. *MKT+* equals *MKT* when return is positive, and zero otherwise. Insider refers to insider retention and is defined as (shares outstanding after offering-total shares offered)/shares outstanding after offering. BV refers to book value of equity one year prior to offering. *SALES* and *R&D* are based on prior IPO year data. L(Variable) is defined as L(Variable)=log (1+Variable) when Variable is greater or equal to zero; L(Variable)=-log (1-Variable) when Variable is less than zero. *MEANPS* is the mean of price to sales per share ratio of the IPO firm industry. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively.

	Model 1 IR	Model 2 IR	Model 3 IR		Model 4 IR	
INTERCEPT	-3.1296	-8.1357	-5.2727		-10.3078	
	(-0.37)	(-0.84)	(-0.61)		(-1.05)	
DCA	0.5748	0.5551				
	(0.70)	(0.67)				
POS_DCA			3.3473	**	3.1577	**
			(2.16)		(2.03)	
NEG_DCA			-0.6802		-0.6187	
			(-0.67)		(-0.61)	
RANK	0.3953	0.3969	0.5214		0.5196	
	(0.77)	(0.78)	(1.02)		(1.01)	
BIG8	-0.1038	0.2783	-0.3411		0.1040	
	(-0.02)	(0.05)	(-0.07)		(0.02)	
VC	1.1001	0.7568	1.1050		0.8463	
	(0.39)	(0.25)	(0.39)		(0.28)	
LOGAST	-1.4063	-0.3418	-1.3482		-0.5093	
	(-1.48)	(-0.25)	(-1.42)		(-0.37)	
NYSE	5.4226	6.3577	5.9199		6.7064	
	(0.77)	(0.90)	(0.85)		(0.95)	
NMS	7.8491	8.8076	8.2529		9.1696	
	(1.29)	(1.44)	(1.35)		(1.50)	
AMEX	-2.5381	-1.9183	-2.3165		-1.6209	
	(-0.27)	(-0.20)	(-0.25)		(-0.17)	
TECH	1.9987	0.8083	1.6403		0.3586	
	(0.67)	(0.25)	(0.55)		(0.11)	
CHANGEP	0.0970	0.1080	0.0876		0.0994	
	(0.91)	(1.02)	(0.83)		(0.93)	

CHANGEP+	1.6001	***	1.5738	***	1.6023	***	1.5744	***
	(10.5)		(10.23)		(10.53)		(10.25)	
MKT	-9.6291		-8.9723		-8.0500		-7.4237	
	(-0.94)		(-0.88)		(-0.79)		(-0.73)	
MKT+	23.8549		23.1938		22.6467		22.0819	
	(1.56)		(1.52)		(1.48)		(1.44)	
INSRET			13.1479	*			12.9687	*
			(1.82)				(1.79)	
L(BV)			0.2837				0.3040	
			(0.68)				(0.73)	
L(SALES)			-1.8647				-1.6195	
			(-1.53)				(-1.32)	
L(R&D)			0.0400				0.2210	
			(0.03)				(0.19)	
MEANPS			-0.0223	**			-0.0218	**
			(-2.06)				(-2.01)	
Year Dummies	Yes		Yes		Yes		Yes	
No. of Obs.	952		952		952		952	
Adjusted R^2	0.4762		0.4791		0.4782		0.4807	

** *, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table V
Discretional Current Accruals on Offer and Market Prices

Shown here are the cross-sectional regression models for IPO valuations from 1990 to 2004. Dependent variables are log of IPO offer prices (LogOffer) and log of first day closing prices (LogPrc), respectively. Pos_DCA (Neg_DCA) equals discretionary current accruals when DCA is positive (negative), and zero otherwise. BV refers to book value of equity one year prior to offering. Sales and R&D are based on prior IPO year data. L(Variable) is defined as L(Variable)=log (1+Variable) when Variable is greater or equal to zero; L(Variable)=-log (1-Variable) when Variable is less than zero. MeanPS is the mean of price to sales per share ratio of the IPO firm industry. Rank is the underwriter rank based on Carter, Dark, and Singh (1998) and updated in Loughran and Ritter (2004). BIG8 is the indicator variable for IPOs audited by the Big 8 public accounting firms. VC equals one if the IPO firm is ventured-backed, zero otherwise. Logast is the log of total assets. NYSE equals one if the IPO firm is listed on the New York Stock Exchange, and zero otherwise. NMS equals one if the IPO firm is listed on the Nasdaq National Market Stock Exchange, and zero otherwise. AMEX equals one if the IPO firm is listed on the American Stock Exchange, and zero otherwise. Tech equals one if the firm is in a high tech industry, and zero otherwise. ChangeP is the price revision between the midpoint of the initial filing range and the final offer price. ChangeP+ equals ΔP when price revision is positive, and zero otherwise. MKT is the average CRSP equal-weighted index return three weeks prior to issuance. MKT+ equals MKT when return is positive, and zero otherwise. Insider refers to insider retention and is defined as (shares outstanding after offering-total shares offered)/shares outstanding after offering. *t-statistics* are provided in parentheses for valuation models. ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively.

The difference model results, which are based on *Seemingly Unrelated Regressions* and *F-statistics,* are provided in parentheses in the difference column. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	LOGOFFER		LOGPRC		Difference	
INTERCEPT	1.7298		1.6759			
	(27.44)		(18.02)			
POS_DCA	0.0058		0.0281	*	0.0222	**
	(0.58)		(1.90)		(3.95)	
NEG_DCA	-0.0070		-0.0145		-0.0075	
	(-1.08)		(-1.51)		(1.05)	
L(BV)	0.0050	*	0.0052		0.0002	
	(1.86)		(1.31)		(0.00)	
L(SALES)	0.0193	**	0.0271	**	0.0077	
	(2.45)		(2.32)		(0.77)	
L(R&D)	0.0275	***	0.0372	***	0.0098	
	(3.6)		(3.31)		(1.32)	
MEANPS	0.1360	*	0.0031		-0.1329	*
	(1.95)		(-0.03)		(3.17)	
INSRET	0.0819	*	0.1181	*	0.0362	
	(1.76)		(1.72)		(0.48)	
RANK	0.0093	***	0.0136	***	0.0043	
	(2.82)		(2.79)		(1.33)	
BIG8	0.1557	***	0.1522	***	-0.0035	
	(4.70)		(3.11)		(0.01)	
VC	0.0144		0.0302		0.0158	
	(0.73)		(1.04)		(0.52)	
LOGAST	0.0824	***	0.0575	***	-0.0249	**
	(9.34)		(4.42)		(6.39)	
NYSE	0.1895	***	0.3172	***	0.1277	**
	(4.19)		(4.75)		(6.37)	
NMS	0.1374	***	0.2826	***	0.1452	***
	(3.50)		(4.88)		(10.94)	

AMEX	0.0548		0.1089		0.0540	
	(0.91)		(1.22)		(0.64)	
TECH	0.0073		0.0004		-0.0069	
	(0.35)		(0.01)		(0.09)	
CHANGEP	0.0129	***	0.0147	***	0.0018	**
	(18.83)		(14.57)		(5.71)	
CHANGEP+	-0.0078	***	-0.0008		0.0070	***
	(-7.86)		(-0.57)		(39.46)	
MKT	-0.0506		-0.0836		-0.0330	
	(-0.77)		(-0.86)		(0.20)	
MKT+	0.0690		0.1771		0.1081	
	(0.70)		(1.22)		(0.97)	
Year Dummies	Yes		Yes			
No. of Obs.	952		952			
Adjusted R^2	0.6408		0.6207			

** *, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

ENDNOTES

[1] This amounts to $86.2 million (in 2003 dollars) left on the table that the issuers could have used.

[2] In the context of British IPOs, Ball and Shivakumar (2008) argue and provide evidence of conservatively reported earnings prior to the IPOs.

[3] Welch (1989) presents a signaling model in which the high-quality firms will underprice the initial public offering in order to obtain a higher price at the seasoned offering. A higher price at the seasoned offering eventually compensates for the underpricing in an IPO.

[4] Rock (1986) presents a model in which informed investors only participate in IPO activities when new issues are underpriced. Underpriced issues are more likely to be oversubscribed and rationed. Thus, uninformed investors systematically receive more overpriced IPOs and earn below average returns. Therefore, new issues need to be underpriced to induce the participation from uninformed investors and avoid the "winner's curse" problem. Benveniste and Spindt (1989) use the book-building process to illustrate partial price adjustment. They suggest that issuers underprice the issues to induce regular participants to reveal an indication of interest. This model predicts a partial adjustment of the offer price with respect to private information to compensate regulars for revealing positive information. Underwriters only partially incorporate positive information learned during the registration period into the final price. Benveniste and Spindt's model provides an explanation for IPO underpricing and the allocation pattern to repeated IPO participants.

[5] Though questions have been raised if the accruals anomaly is the same as some other well-documented anomalies in the finance literature (glamour versus value), there is evidence of accruals mispricing above and beyond other anomalies (Desai et al., 2004; Cheng and Thomas, 2006).

[6] Hribar and Collins (2002) show that the balance sheet approach to the measurement of discretionary accruals results in upward biased discretionary accruals. One explanation for this bias is that firms use IPO proceeds to adjust their working capital quite frequently and that these adjustments can be quite drastic. Because Teoh, Welch, and Wong (1998) estimate accruals from changes in working capital accounts reported on the successive balance sheets, this can create a significant measurement problem that can bias towards finding a relation between discretionary accruals and future returns.

[7] An IPO proceeds is another measure to control for size. Our results do not change with this alternate measure of size.

[8] The Loughran and Ritter (2004) rankings range from 1.1 to 9.1. Underwriters that are not covered by Carter, Dark, and Singh or Ritter and Loughran are lesser known underwriters and are assigned a rank of zero.
A further breakdown of accruals into current and non-current accruals shows that the largely negative accruals are driven by large depreciation and amortization expenses (part of non-current accruals).

[9] We consider year dummies as well as three periods to control for differences across periods: 1990-1998, 1999-2000, and 2000-mid-2002. The results, not fully reported here, are qualitatively similar.