

# **Managerial Stock and Option Holdings and Fraudulent Financial Reporting of IPO Firms**

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## **Abstract**

I examine whether managerial stock and options holdings influence the propensity of going-public firms to manipulate financial information, as measured by the incidence of shareholder class action lawsuits and discretionary accruals. Examining a sample of U.S. firms that went public during the years 1996-2006, I find some evidence that firms in which top managers receive large stock options grants prior to the IPO are more likely to face class action lawsuits and have higher issue-quarter discretionary accruals. These preliminary results suggest that more stock option grants in the pre-IPO period may encourage managers to distort financial information during the IPO process. Overall, the evidence in this paper contributes to our understanding of the relation between managerial equity incentives and actions of managers that may affect the quality of reported earnings.

*Keywords: Initial public offerings; Managerial share ownership; Managerial incentives; Earnings Management.*

*JEL Classification: G32*

**Preliminary draft! Comments are welcome!**

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## **1. Introduction**

A substantial body of research in finance and accounting documents that financial market participants use accounting information, especially reported earnings, to infer the value of firm securities. The role of recently reported earnings is particularly important in the pricing of initial public offerings (IPOs) because most of these offerings have short operating history and no analyst following. However, a number of studies argue that managers of privately held companies intentionally manage earnings upward to temporarily inflate the true earnings in order to boost initial offering price and post-issue equity values (e.g. Teoh, Welch and Rao, 1998a; Teoh and Wong, 2002). One of the reasons offered to explain why going-public firms engage in purposeful earnings management is that it serves personal interests of top managers, who typically have a significant amount of personal wealth tied to firms' equity value. Managers with substantial stock and option holdings benefit directly from a higher share valuation following the IPO and thus may seek to mislead investors by manipulating information about the true earnings. However, there is limited empirical evidence on the role of managerial holdings of stock and options on earnings manipulation of going-public firms. The objective of this paper, therefore, is to fill this gap. Given the growing popularity of stock-based compensation as well as high managerial stock ownership in firms that prepare to go public, it is important to examine the relation between equity incentives and information manipulation choices of managers, if any.

A substantial body of theoretical work in finance and economics, starting with Jensen and Meckling (1976), suggests that managerial stock incentives are one effective way to align the incentives of managers and shareholders and therefore reduce the costs of agency conflicts. These agency theories suggest that managers with more equity incentives are less likely to manipulate information given high costs of potential litigation. However, several recent empirical studies argue that powerful stock incentives may have motivated managers of large established firms

comprising S&P 1,500 index to manipulate earnings within generally accepted accounting principles (GAAP) or report earnings computed in violation of GAAP in order to boost short-term stock prices and thus increase the value of their compensation. For example, Bergstresser and Phillippon (2006) find that CEO equity-based compensation, especially stock options, are positively associated with accrual-based earnings management. Burns and Kedia (2006) and Efendi et al (2007) document a positive association between CEO's stock option holdings and firm propensity to misreport accounting information. However, Erickson et al (2006) and Armstrong et al (2010) do not find an association between CEO incentives and accounting irregularities.

Policymakers also seem to believe that excessive levels of equity-based compensation may encourage managers to manipulate earnings in order to maintain high levels of stock prices. For example, in his 2002 congressional report, Alan Greenspan states that:

*...the highly desirable spread of shareholding and options among business managers perversely created incentives to artificially inflate reported earnings in order to keep stock prices high and rising. This outcome suggests that the options were poorly structured, and consequently, they failed to properly align the long-term interests of shareholders and managers.*

Finally, plaintiffs' complaints in class action lawsuits often allege that the motive for the managers' false and misleading financial reporting during the IPO process is to enable them to sell personal holdings of stock at artificially high prices. Therefore, given the central role of managerial equity incentives in the earnings manipulation literature, one can anticipate that going-public firms where top managers hold more shares and options at the time of the offering to have higher propensity to report financial statements that materially and intentionally misrepresent earnings.

To test the above views regarding managerial equity incentives, I study a sample of U.S. firms that went public between January, 1996 and December, 2006. My primary measure of earnings manipulation by going-public firms is based on the incidence of shareholder-initiated class action lawsuits alleging intentional material misrepresentation of financial information during and immediately following the IPO process. I also use discretionary accruals around the offering date estimated using the modified Jones model as an alternative measure of earnings manipulation. I obtain information on security class action lawsuits from the Securities Class Action Lawsuit Clearinghouse at Stanford University. In my IPO sample, 99 firms are sued for allegedly materially misstating their financial information related to reported earnings leading up to the offering or in the first year of the offering.

I then hand-collect data on top executive officers' stock ownership and option holdings for these sued firms as well as for nonsued random sample of more than 200 going-public firms from the IPO prospectuses and proxy statements. In my sample of going-public firms, CEOs and other top executives hold substantial equity stakes in their firms. On average, CEOs and top five executives own 17% and 23% of their firms' shares outstanding before the IPO, respectively. Options also represent a significant portion of executives' portfolio before the offering. The shares underlying CEO options average 4.5% of firms' equity prior to the offering. Concurrent with the IPO, CEOs and other top executives tend to receive additional option grants with underlying shares averaging 9% of firms' equity prior to the IPO.

My preliminary findings are as follows. Using a multivariate probit regression with a number of controls for firm and deal specific characteristics, I find that executive options granted before the offering are positively associated with the probability of being sued for fraudulent financial reporting. However, the level of top executives' stock ownership is negatively

associated with the lawsuit probability. I find similar results using discretionary accruals in the quarter of the offering as a measure of earning manipulation. These findings suggest that more stock option grants before the offering may encourage managers to distort financial information during the IPO process.

My study contributes to studies examining firm accounting choices at the time of an initial public offering and subsequent effect of those choices on the operating and stock performance of newly public firms. Teoh, Wong and Rao (1998), Aharony et al. (2000) and Teoh and Wong (2002) find that initial public offerings in U.S., on average, have high earnings and abnormal accruals in the year of the offering. Teoh, Wong and Rao (1998) and Teoh, Welch and Wong (1998) further document that issuers with abnormally high discretionary accruals in the offering year tend to experience lower earnings and abnormal stock returns after the IPO. However, subsequent studies question their findings. Ball and Shivakumar (2008) argue that going-public firms increase their financial reporting quality at the time of the IPO because of increased monitoring and scrutiny by financial statement users, auditors and other market and government entities. The authors provide evidence that firms' report more conservatively around the time of their initial public offering. Fan (2007) does not find that high discretionary accruals in the IPO year are negatively related to subsequent stock returns.

My study differs from these studies in two important ways. First, I examine previously unexplored question of the effect of executive stock ownership and option holdings on IPO firms' earnings manipulation decisions. Second, I focus on detected cases of intentional and material misrepresentation of financial information during the IPO process to investigate the role of managerial equity incentives.

My study also contributes to recent finance literature that studies the causes and consequences of class action or regulators' lawsuits alleging financial fraud by IPO firms. DuCharme et al. (2004) find that the incidence of shareholder class action lawsuits following the IPO is significantly positively related to discretionary current accruals in the fiscal year of the offering. Lowry and Shu (2002) study the joint determination of IPO underpricing and the risk of being sued. Wang, Winton and Yu (2010) examine whether IPO firms' propensity to commit financial fraud varies with industry business conditions. However, none of these studies directly examine the relation between managerial equity incentives and the incidence of a lawsuit.

Finally, my study contributes to studies that examine the association between executive compensation and earnings management or accounting irregularities of large firms comprising S&P 1,500 universe. The prominent studies in this area include Bergstresser and Phillippon (2006), Burns and Kedia (2006), Efendi et al (2007), Erickson et al (2006) and Armstrong et al (2010). In contrast, I study the impact of managerial incentives on the propensity to misrepresent financial information in firms preparing to go public. This research setting has important advantages because, as discussed above, managers of going-public firms have particularly strong incentives as well as opportunity to intentionally mislead investors in order to boost firm equity value.

## **2. Data and variables**

### **2.1 Sample Selection**

My sample contains all U.S. initial public offerings of common stock between January 1, 1996, and December 31, 2006, reported by the Thomson Financial Securities Data

Corporation (SDC) New Issues database. My sample starts in 1996 when the IPO prospectuses become available online on the S.E.C. Electronic Data Gathering, Analysis, and Retrieval (EDGAR) service. In addition, Stanford Law School Securities Class Action Clearinghouse also starts its coverage of private securities class action lawsuits in 1996. My initial sample contains around 3,000 completed IPOs. Following the empirical IPO literature, I exclude spinoffs, unit offers, limited partnerships, firms incorporated outside the U.S., real estate investment trusts, and offerings by financial service and consulting firms. I further require firms to have available stock data on the Center for Research in Security Prices (CRSP) and available data on key accounting variables on Compustat databases in the fiscal quarter prior to the offering as well as the quarter of the offering. We retain only firms with an offer price at least \$5.00, IPO proceeds of \$1 million, and that have net sales and total book assets more than \$1 million (in 1997 dollars) at the end of the fiscal year before the IPO. This screen eliminates very small firms which may distort results and are economically less important. These selection criteria create a final sample of 1,908 firms with valid information on key variables.

From the SDC data file I collect the offer date, offer price, initial file price range, proceeds, names of managing underwriters, and whether the issue was backed by a venture capitalist. The accounting data comes from COMPUSTAT. To determine firms' age, I determine the date on which the firm was founded or began operations. The founding dates for the sample firms largely come from the Loughran and Ritter (2004) database available on Prof. Ritter's website. When necessary, I determine the founding dates for the offerings from IPO prospectuses. In each of the tests, I use as many observations as possible, so the sample is not necessarily the same across regressions.

## 2.2. Measuring Financial Fraud

Whether managers of going public firms manage earnings upward with the intention of misleading investors is difficult to measure directly. I use shareholder-initiated securities class-action lawsuits as detected instances of firms allegedly attempting to mislead investors by materially misreporting earnings. Several recent studies, including DuCharme et al (2004), Dyck, Morse and Zingales (2010) and Wang, Winton and Yu (2010), also used class action lawsuits to identify financial fraud. As Dyck et al (2010) note, class-action lawsuits are a potentially comprehensive source for material financial fraud because financial misconduct revelations usually lead to a steep stock price decline, which almost certainly draws attention of class action law firms in the U.S..

I obtain an initial sample of class actions lawsuits filed between 1996 and 2008 from the comprehensive database maintained by Stanford Law School Securities Class Action Clearinghouse (SCAC).<sup>1</sup> The sample starts in 1996 to ensure that all lawsuits are resolved within the legal standards of the Private Securities Litigation Reform Act of 1995, intended to reduce frivolous litigation. This database contains detailed information on lawsuits filed by shareholders against firms and their managers to recover damages allegedly resulting from firms' violating the Federal 1933/1934 Securities and Exchange Acts. My analysis focuses on lawsuits alleging violation of Section 11 of the Securities Act of 1933 and Sections 10(b) of the Securities Exchange Act of 1934. A typical complaint states that: (1) the firm and its managers provided financial statement in violation of GAAP, (2) financial statements were materially misleading, (3) managers intended to mislead the investing public. In general, investors file securities class action lawsuits following the disclosure of improprieties in previously reported financial information.

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<sup>1</sup> The database is available online at <http://securities.stanford.edu>



I next search for lawsuits initiated no later than three years after the IPO date which is the statute of limitations on lawsuits under the Exchange Act. I identify 509 class-action lawsuits initiated against IPO firms within three years following the issuance date. I read each plaintiff complaint to identify whether it involves an alleged material and intentional misstatements of reported earnings. Consequently, I eliminate IPO underwriter allocation class action suits. Finally, I identify 99 lawsuits that allege issuance of materially false and misleading earnings numbers to investors during the IPO stage, i.e. the class period includes the initial and secondary public offering dates.

None of these lawsuits went to trial. Three cases were dismissed after the judicial review and the rest resulted in the out-of-court settlements. Karpoff, Lee and Martin (2006) show that settlement amounts are correlated with regulators' estimates of shareholders' losses from the misrepresentation of financial information. The average and median settlement amounts are \$13.7 million and \$5 million. Relative to the proceeds raised from the IPO, the average and median settlement costs equal 14.3% and 7.3% of the proceeds.

### **2.3 Measuring managerial stock and option holdings**

My measures of managerial stock incentives are stock and stock options holdings of chief executive officer and other top ranking executive officers at the time of the initial offering. The data are hand-collected on the chief executive officer and five-highest paid executive officers for 99 firms allegedly involved in financial fraud and for a randomly chosen 203 non-fraud IPO firms with IPO prospectuses and proxy statements available on the Securities and Exchange Commission's Electronic data Gathering, Analysis, and Retrieval (EDGAR) system.

Data on executive stock and options holding prior to the IPO are collected from the IPO prospectuses (Form 424B4). Managerial stock ownership includes beneficial ownership disclaimed by the manager excluding stock options exercisable within 60 days. Stock option holdings include vested unexercised options and unvested options outstanding as of the IPO prospectus date. Options issued before the offering usually have an exercise price of less than \$1.00 per share and thus, such options become in-the-money after the offering .

I also collect data on stock options awarded concurrently with the IPO from the proxy statements covering the first fiscal year of the IPO (Form DEF 14)<sup>2</sup>. As documented by Lowry and Murphy (2007), a significant number of firms award stock options to its executives around the time of the offering with an option exercise price equal to or slightly less than the initial public offering price. The information on IPO options contained in the IPO prospectus for Ralph Lauren and the proxy statement for Dick's Sporting Goods Inc are typical examples:

“Upon commencement of the Offerings, Mr. Lauren will receive an initial grant of options to purchase 500,000 shares of Class A Common Stock (the "Initial Lauren Options"), each with an exercise price equal to the initial public offering price. The Initial Lauren Options will be fully vested on the date of grant.”

“An option to purchase 924,000 shares of common stock (..with an exercise price equal to the IPO price) was granted on October 15, 2002, just prior to our initial public offering to Mr. Stack (CEO of Dick's Sporting Goods). “

An important issue is how to measure executive equity incentives. Following Jensen and Murphy (1990), my main measure of the equity incentives is the fractional (percent) equity ownership. The percent stock and option holdings calculated as the holdings of shares divided by the total number of shares outstanding before the IPO. Managerial stock and option holdings as a

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<sup>2</sup>Michelle Lowry graciously provided her data on stock options grants concurrent with the IPO.

fraction of shares outstanding measures the marginal dollar change in executive wealth for a marginal dollar change in firm value. The percent holdings are highly skewed, so I use natural log transformations of the variables in all analyses.

#### **2.4 Summary Statistics of Sued and Nonsued IPO Firms**

Table 1 presents the distribution of IPO firms sued for alleged fraudulent reporting and non-sued IPO firms across calendar years and industries. The sample period spans periods of the boom and subsequent bust in the technology section of the economy. The number of IPO is much higher in the 1990s, coinciding with the period of high stock market valuation. After the 2000-2001 crash in the technology sector, the IPO activity slows down dramatically. The proportion of firms involved in IPO class action in lawsuits varies somewhat over the sample period, peaking in 2001. Panel B of Table 1 documents the distribution of sued IPO across industries based on the 48 Fama and French industry groupings. The largest numbers of sued IPO firms are in the computer software, electronic equipment, healthcare, medical equipment, and business services industries. Specifically, 34 out of 560 firms that went public in the computer software industry were sued for financial fraud.

Table 2 compares selected pre-IPO financial characteristics as well as characteristics of the offering for the sub-samples. The accounting variables are measured as of the end of the fiscal quarter of the offering ( $t=0$ ). All variables are winsorized at 1 and 99% to reduce the possible effect of outliers

The summary statistics suggest that there are some differences in financial and offering characteristics between sued and nonsued offerings. Specifically, sued issuers have higher market capitalization using the first trading day closing price but have less book assets at the time of an IPO. Consequently, sued firms have a higher market-to-book assets ratio following the IPO. Sued firms have slightly worse operating performance as reflected in lower operating income to net assets and sales to total costs ratios. All these differences are statistically different from zero at the five percent level of significance. Sued IPO firms raise more capital from their offering and are more underpriced as measured by the first-day return. No statistically significant differences exist between the sued and nonsued samples in terms of IPO offering price, offered shares as a fraction of the outstanding shares pre-IPO, leverage and cash holdings at the time of the IPO.

I also compare differences in the underwriter reputation and frequency of venture capital involvement across two types of IPO firms. Underwriter reputation may be related to firms' propensity to distort information because investment banks screen going-public firms and thus help certify firm quality (Carter and Manaster, 1990). Specifically, investment banks with prominent reputations select better quality issuers for underwriting. I measure the average reputation ranking of the first three leading managing underwriters using the Loughran and Ritter (2001) updated version of the Carter and Manaster (1990) underwriter reputation ranking. The ranking ranges from 0 to 9.1, with higher value corresponding to higher-quality underwriters. Similarly, venture capital backing of IPOs can provide certification of the IPO's value because of their screening, monitoring, and decision-support functions. Kaplan and Stromberg (2004) further show that VCs play key governance roles in the companies they finance. Therefore, it is natural to conclude that venture capital IPOs are better prepared to go public and should fare better afterwards. Table 2 shows that sued IPO firms have slightly better underwriters, with an average

underwriter ranking of 7.8, than their nonsued counterparts who have underwriters with an average ranking of 6.87. The proportion of offerings backed by venture capital is relatively similar across both samples with about 46% of IPOs being backed by venture capital.

### **3. Results**

#### **3.1 An Analysis of Managerial Equity Incentives and Earnings Fraud**

In this section, I examine the relation between executive stock and option holdings and alleged fraudulent reporting of going-public firms. To give a sense of the magnitude of managerial equity incentives, Table 3 starts by presenting the mean and median levels of managerial stock and option holdings for the sued and nonsued samples. The table reveals some differences in the managerial stock ownership and option holdings between sued and non-sued firms. Prior to the offering, CEOs of both firms hold similar equity stakes in their firms. CEOs hold, on average, 17 % of their firms' shares prior to the IPO. A median CEO stock ownership in the firm's equity is 5.7%. However, the dollar value of CEO equity stakes using the first day closing price is significantly different between the two subsamples. The CEOs of sued firms hold significantly higher dollar equity stakes in their firms, at an average of \$90 million, than their counterparts at nonsued firms, who, on average, hold \$53 million worth of shares. I do not examine post-IPO CEO ownership because I find that CEOs sell very little of their equity holdings at the offering. Such low levels of executive share sales is due to the fact that top managers have many implicit and explicit restrictions on the sale of their firm's stock imposed by

the venture capitalists, underwriters and regulators. For example, almost all offerings have lockup agreements that prohibit top managers from selling their shares for a specified period of time, usually 180 days after the IPO.

The table also shows use of stock options is quite large and that the shares underlying their stock options constitute a significant proportion of the CEOs portfolio prior to the IPO. Prior to the IPO, the number of shares in option grants to CEOs of sued firms constitute, on average, 8.72 % pre-IPO shares outstanding. A median number of shares in option grants relative to pre-IPO shares outstanding of CEOs of sued firms is 1.4%. In contrast, the mean and median number of shares in option grants relative to pre-IPO shares outstanding of the CEOs in the nonsued firms are 2% and 0.6%. These differences in pre-IPO option holdings are significant at better than the ten percent level.

Nonsued firms, however, grant more options concurrent with the offering than do their sued counterparts. The average number of shares underlying the options grants of the CEOs of nonsued firms is on average, 13% of shares outstanding before the IPO. The corresponding number of shares in options granted concurrent with the IPO of the CEOs of sued firms is 1.2%, on average.

These simple comparisons are suggestive of important differences in equity incentives of top executives of sued and nonsued IPO firms. However, these comparisons do not control for firm and offering characteristics related to the underlying firm quality and potential costs of committing a financial fraud. Therefore, I next examine whether managerial stock and options holdings are associated with alleged fraudulent reporting at the IPO stage in a multivariate setting with a number of control variables.

My basic approach is to estimate probit regressions where the dependent variable is a binary indicator for whether the going-public firm has a class action lawsuit alleging financial misrepresentation at the IPO stage. Main variables of interest in the regressions are the stock and options holdings of CEOs and top five executive officers. I also include a number of offering characteristics as well as firm characteristics as control variables. Offering characteristics include the initial offering price, venture capital backing, and underwriting investment banks' reputation. Firm characteristics include firm size, financial leverage, and operating profitability.

Seguin and Smoller (1997), among others, suggest that IPO share price is informative of the quality of issuers. Firms with higher operating profitability are less likely to commit financial fraud because they already have better operating performance. Financial leverage control for the probability of financial distress and higher financing costs.

Firm size can be either positively or negatively related to the probability of lawsuit. On one hand, larger firms are subject to more scrutiny from analysts and investors and, therefore, should have less flexibility to misreport earnings. On the other hand, larger firms are more likely to be sued because they have more resources or higher liability insurance coverage and therefore can pay higher settlement awards. Firm size is measured as the natural log of market capitalization at the end of the first trading day.

As was discussed, venture capital backing and underwriter reputation may be related to lawsuit probability because investment banks and venture capital firms screen going-public firms and thus help certify firm quality. Venture capitalists also provide managerial guidance to the businesses in which they hold a stake. I measure underwriter reputation using the adjusted Carter-Manaster (1990) rankings from Prof. Jay Ritter's web site. The ranking ranges from 0 to 9 with higher ranks representing higher quality.

The regressions include year and industry fixed effects to control for possible industry effects and macroeconomic conditions. Robust standard errors of the coefficient estimates are calculated after clustering by industry.

Table 5 reports the results of the regression. I report marginal effects of all explanatory variables except for the industry and year effects along with standard errors clustered at the quarterly level. The structure of the table is as follows: Column 1 uses percent stock ownership as the measure of equity incentives, Column 2 uses pre-IPO option grants and option grants issued concurrent with the IPO (IPO Concurrent options) as the measures of equity incentives, and Column 3 examines stock and two types of options holdings together. Column 4 includes two additional indicator variable for whether a CEO is a chairman of the board and whether a CEO is a founder of the firm. These variables are frequently used in the literature as measures of a CEO's influence on the board of directors that can reduce the independence and effectiveness of the board and increases CEO power (e.g. Jensen, 1993). In Column 5, I attempt to use only meritorious claims of financial fraud and exclude potentially frivolous lawsuits. Specifically, I exclude three dismissed lawsuits and four firms for which the settlement amount is less than \$2 million. Choi, Nelson and Pritchard (2005) suggest that lawsuits that end in the settlement amount of \$2 million are more likely to involve frivolous claims.

In Panel A of the table, I focus on the equity incentives of chief executive officers. Among the top executives, CEOs should arguable have the most influence on firms' decision to intentionally report misleading information. The results show that the probability of a lawsuit is not related to CEO stock ownership, indicated by the coefficient on stock ownership that is negative but not statistically different from zero in all regression specifications. However, I find that the lawsuit probability is significantly higher in IPO firms that grant more stock options to



their CEOs before the IPO. The effect of pre-IPO options is both statistically and economically significant. For example, the coefficient on pre-IPO options in Column 2 of 0.073 implies that a one standard deviation increase in a CEO's pre-IPO options holdings at the mean increases the probability of a lawsuit by a 6.8 percent. This positive relationship is robust to the inclusion of additional variables in Columns 3, 4 and 5.

Surprisingly, I find that the options granted concurrent with the IPO have an opposite, negative, relation with the probability of a lawsuit. More specifically, a one standard deviation increase in CEOs option grants awarded concurrent with the IPO reduces the probability of a lawsuit by approximately 9 percent. These results suggest that options granted before and concurrent with the IPO may have different incentives effects on managers' propensity to (allegedly) misreport earnings. As was discussed earlier, options granted before the IPO usually have very low exercise price and therefore are deep-in-money after the offering. In addition, unvested pre-IPO options become immediately exercisable after the offering. Therefore, pre-IPO options increase dollar for dollar with the increase in the value of the underlying firm share price after the IPO. Hence, pre-IPO options should provide particularly strong incentives for managers to boost firm share price at and following the IPO.

Most of the control variables in the regression except for the CEO-founder indicator variable are insignificant. The coefficient the CEO-founder indicator variable is positive suggesting that the probability of a lawsuit is higher in firms where the CEO is the founder of the firm.

In Panel B, I replicate the procedure by using the equity incentives of top five highest paid executive officers. The estimated coefficients on all variables are consistent with the earlier findings except the executive ownership. The coefficient on executive ownership is negative and

statistically significant, indicating that firms in which top five managers hold more equity stakes are less likely to be involved in a lawsuit alleging financial fraud.

## **2.2. An Analysis of Managerial Equity Incentives and Accrual-based and Real Earnings Management**

My objective in this paper is to examine the effect of managerial equity incentives on intentional distortion of financial information. So far, I focused on class-action lawsuits alleging financial fraud during the IPO process. The problem with this approach is that the lawsuits dataset only include detected firms that issued materially misleading fraudulent reports. Therefore, such dataset likely include the most egregious or relatively easily detectable cases of earnings manipulation while excluding firms whose information manipulation was not detected. In addition, because none of the lawsuits result in a trial and resulting judgment, all these cases involve only *alleged* fraudulent reporting and it is impossible to identify the truly meritorious claims of financial fraud. To address this problem, I repeat the earlier tests using an alternative measure of earnings manipulation as suggested by the literature. Specifically, I examine the relation executive equity incentives and accounting choices of managers designed to boost reported current period earnings without violating GAAP.

Most prior studies on the earnings management use abnormal levels of accruals as a proxy for earnings management. While Dechow, Sloan, and Sweeney (1995) note abnormal accruals can be biased and noisy estimates of discretionary accrual choices of managers, DeFond and Jiambalvo (1994) argue that accruals have “the potential to reveal subtle manipulation strategies related to revenue and expense recognition”.

Following Teoh, Welch, and Wong (1998) and DuCharme et al (2004), my main measure of accrual-based earnings management is abnormal current accruals. The accrual component of earnings are accounting adjustments, which include managers' estimates of expected future cash inflows and outflows and deferring past cash inflows and outflows. Under generally accepted accounting rules, managers may exercise certain discretion in the choice of accounting methods to compute accruals. For example, managers can use their judgment with regards how to estimate of unrealized gains or losses. If managers make discrete accrual choices actions to distort the true earnings, it is expected that accrual manipulation is reflected in abnormal accruals. I focus on current accruals which, Teoh et al (1998) and DuCharme et al (2004) argue, are more likely to be manipulated by managers.

To separate total accruals into normal and abnormal levels of accruals, I estimate the modified cross-sectional Jones (1991) model adjusted for operating performance as suggested by Louis and White (2007). Specifically, for each calendar quarter and Fama-French 48 industry group, I first estimate the following model using all listed firms that are at least two years removed from their IPO:

$$Current\ Accruals_{i,t} = k_1\ Quarter\ Indicator + k_2\ \Delta Sales_{i,t} + k_3\ PPE_{i,t} \quad (1)$$

where  $i$  and  $t$  stand for industry and year; *Current Accruals* is measured as the change in current assets minus change in current liabilities minus change in cash and cash equivalents plus change in current portion of debt. *PPE* is gross property, plant and equipment. Fiscal Quarter indicators are included to address the potential seasonality in firm revenues and accruals.

The scaling of the variables merits some discussion. It is a common practice in the literature to scale both left and right hand variables in the Jones model by prior period total assets. However, in the IPO setting this may create a bias since issuing firms tend to significantly

increase their assets base in the issuing period. Scaling by prior period assets, therefore, can overstate abnormal accrual in the fiscal period of the offering. To mitigate this problem, I chose to scale all discretionary accruals as well as other all other variables in this study by cash adjusted book assets (net assets) instead of total assets. I obtain similar results if I scale accruals and other variable using the prior period sales. The results using prior period sales are not reported but are available upon request.

The estimated parameters from Equation (1) are used to create expected accruals using the firm's changes in quarterly sales adjusted for changes in accounts receivables, PPE and lagged assets. The abnormal or excess level of accruals for each of the offering firm is calculated as the difference between actual current accruals and expected accruals. Positive abnormal accruals thus indicate income-increasing manipulations.

Accounting earnings consist of both accruals and cash flow components. Consequently, earnings management practices can be classified into two broad categories: real policies affecting cash flows and accruals management. Following Roychowdhury (2006) and Cohen et al. (2008), I also use the abnormal levels of cash flows from operation as a measure of real earnings management. The results are very similar to abnormal accruals and for the sake of brevity are not reported.

Though widely used in the literature, Dechow, Sloan, and Sweeney (1995) show that the models above tend to produce estimates of discretionary accruals, and by extension abnormal CFO and discretionary expenses, that are severely misspecified. To correct for the model misspecification, I follow Kothari, Leone, and Wasley (2005) and construct benchmark-adjusted measures of earnings management. The benchmark-adjusted earnings management variables for a given offering are constructed by subtracting the median levels of contemporaneous measures

for matching firms. To select matching firms, I first identify all firms within the same Fama and French 48 industry categories that have been publicly traded more than three years. Each year, I group all these firms in the industry into terciles based on lagged total asset size and within each size group into terciles based on lagged operating income to assets ratio. Each offering is then matched to an appropriate industry-size-performance portfolio. The median of the matching firms portfolio is then used as the appropriate benchmark. Such benchmark adjustment removes all industry and time specific factors that could be correlated with accrual-based and real earnings management. This adjustment also allows for an easier comparison of the earnings management activities and estimated parameters across firms. So, positive values of discretionary accruals correspond to higher discretionary accruals relative to mature firms in the same industry in the same period.

Table 5 compares mean and median industry adjusted abnormal or excess accruals across all IPO firms. The levels of abnormal accruals and operating cash flows are reported for the fiscal quarter before the IPO, fiscal quarter of the IPO, and two, four, six and eight quarters after the IPO. I also report industry adjusted operating income to assets ratio (ROA) over the same period in order to provide a magnitude of these excess accruals.

The average level of excess accruals in the fiscal quarter of the offering is positive and significantly different from zero. So, the average going-public firm has excess accruals equal to 3.9% of prior quarter assets. This finding is consistent with previous studies (e.g. Teoh et al., 1998) and it indicates that an average IPO firm in my sample seems to inflate its reported earnings in the fiscal quarter of the IPO. The median excess accruals are, however, not different from zero. After the offering, the level of discretionary accruals declines substantially for both types of firms.

In order to understand the true marginal effect of executive equity-based incentives on excess accruals and cash flow from operations, I next use a multivariate regression with controls for firm characteristics that might influence the level of excess accruals.

The key parameters of interest are the coefficients on executive ownership and option holdings variables, which represent the differential impact of executives equity incentives on accrual-based or real earnings management. Also included is the log of book assets and firm age measured at the time of the offering to control for differences in firm size and age, which can be correlated with firm incentives and ability to inflate earnings. I also include book leverage ratio because firms with more debt may have greater incentives to manage earnings upwards. All earnings management measures explicitly take industry and year effects into account, so I do not include these fixed effects. I report robust standard errors clustered at the quarterly level.

Table 6 presents the regression estimates. Panel A displays results using the equity incentives of CEOs and Panel B report results using the equity incentives of top five executives. The main results are similar to the results of the lawsuit regressions and, therefore, are easy to summarize. After controlling for firm fundamentals, I find that managerial stock ownership is negatively related to the issuer's abnormal level of accruals in the IPO quarter. In contrast, pre-IPO option holdings are positively related to excess accruals in the IPO quarter. These results suggest that higher stock option grants in the pre-IPO period may encourage managers to subsequently inflate reported level of earnings when a firm goes public.

#### **4. Conclusion**

Several recent studies suggest that managers of firms that go public opportunistically inflate reported earnings to inflate IPO offer prices and post-IPO stock prices (e.g. Teoh et al. 1998).

These studies recognize that managerial incentives are a necessary condition for such opportunistic behavior. However, no studies have explored the link between executive equity incentives and firm earnings management practices around the IPO.

This paper studies whether and how executive stock ownership and options granted before and at the IPO date influence managers' decision to manipulate earnings. Based on the incidence of shareholder initiated class action lawsuits and accrual-based earnings management, I find that options granted prior to the IPO are positively associated with earnings manipulation practices after controlling for firm- and deal-specific characteristics.

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**Table 1: Year and Industry Distribution of the sample**

This table displays the calendar year and 48 Fama-French industry distribution of firms in the sued and nonsued samples. The sample is U.S. initial public offerings of stock in the years 1996-2006. The sued sample consists of 99 class action lawsuits alleging issuance of material misleading financial information before the IPO date or within the first year following the offering. Shareholder initiated class action lawsuits are obtained from the Stanford Securities Class Action Clearinghouse.

	<b>Total</b>	<b>Sued IPO firms</b>	<b>% IPO Firms sued</b>
<b>Panel A: Year distribution</b>			
1996	468	25	5.34%
1997	309	10	3.24%
1998	189	11	5.82%
1999	350	20	5.71%
2000	267	13	4.87%
2001	48	7	14.58%
2002	47	3	6.38%
2003	35	3	8.57%
2004	105	4	3.81%
2005	89	3	3.37%
Total	1,907	99	5.19%
<b>Panel B: Industry distribution of sued IPO firms</b>			
Food Products	17	1	5.88%
Recreation	15	3	20.00%
Printing and Publishing	12	1	8.33%
Consumer Goods	16	2	12.50%
Apparel	17	2	11.76%
Healthcare	31	5	16.13%
Medical Equipment	75	5	6.67%
Pharmaceuticals	95	2	2.11%
Construction	20	1	5.00%
Machinery	36	1	2.78%
Electrical Equipment	11	1	9.09%
Non-Metallic	2	1	50.00%
Communication	103	3	2.91%
Personal Services	38	3	7.89%
Business Services	193	8	4.15%
Computer Hardware	63	4	6.35%
Computer Software	530	34	6.42%
Electronic Equipment	139	10	7.19%
Business Supplies	5	1	20.00%
Transportation	38	4	10.53%
Wholesale	61	2	3.28%
Retail	127	2	1.57%
Restaraunts, Hotels,	77	3	3.90%

**Table 2: Summary statistics**

This table displays summary statistics for explanatory variables for IPO firms in the sued and nonsued samples. Accounting data is from Compustat, stock return data is from CRSP and IPO information is from the SDC databases. Net assets is book assets minus cash. Leverage is long-term debt plus current liabilities over book assets. Operating income is operating income before depreciation, interest, taxes, and extraordinary items (EBITDA). IPO Proceeds is the IPO proceeds from the sale of primary shares divided by IPO prior-year total assets. Adjusted variables are obtained by subtracting the median contemporaneous level of industry and size matched firms at least three years removed from their IPO. Firm age is based on the year the IPO firm was founded or began operations. The sued sample consists of 99 class action lawsuits alleging issuance of material misleading financial information before the IPO date or within the first year following the offering. Shareholder initiated class action lawsuits are obtained from the Stanford Securities Class Action Clearinghouse.

	<u>Sued firms</u>		<u>Non-sued firms</u>	
	mean	median	mean	median
<b>Firm Characteristics</b>				
Market value of equity (\$ millions)	497.88	289.56	381.3	198
Total Assets (\$ millions), IPO quarter	253.57	106.23	331.43	79.41
Age (years)	12.63	8	14.3	7
Operating income/Net Assets	-8.92%	0.07%	-9.03%	2.76%
Pre-IPO Sales/Total Costs	0.91	1	0.98	1.08
Debt/book assets, IPO quarter	0.21	0.11	0.21	0.09
Cash/book assets, IPO quarter	0.47	0.49	0.45	0.47
Market-to-book assets	6.44	3.17	5	3.15
<b>Characteristics of the offering</b>				
IPO proceeds (\$ millions)	98.13	67.5	98.63	50
Initial IPO stock return (%)	48.26	15.63	34	14.17
IPO offer price	14.97	14	13.41	13
Underwriter Ranking	7.81	9.1	6.97	8.1
Venture Capital Backing	45	45	883	883
Number of IPOs	99	99	1796	1796

**Table 3: Comparison of Managerial Stock and Option Holdings: Sued vs nonsued IPO Firms**

This table compares stock and option holdings for Chief Executive Officer (CEO) and top five executives for IPO firms in the sued and nonsued samples. The sued sample consists of 99 class action lawsuits alleging issuance of material misleading financial information before the IPO date or within the first year following the offering. Shareholder initiated class action lawsuits are obtained from the Stanford Securities Class Action Clearinghouse. Data on stock and option holdings are gathered from IPO prospectuses and proxy statements covering the first fiscal year of the offering. I report the p-value of the Wilcoxon-Mann-Whitney tests for whether the median are significantly different from zero between the samples.

	<u>Sued firms</u>		<u>Nonsued Firms</u>		<u>p-value difference</u>
	<u>mean</u>	<u>median</u>	<u>mean</u>	<u>median</u>	
<b>Chief Executive Officer (CEO)</b>					
Stock holdings/Pre-IPO shares	16.56	5.58	17.1	5.73	0.85
Stock holdings: \$ Mil	90.599	15.083	53.011	9.681	0.07
Pre-IPO Options/Pre-IPO shares	8.72	1.4	2.41	0.62	0.06
IPO Concurrent Options/Pre-IPO shares	1.24	0	12.9	0.16	0.35
Total options/Pre-IPO shares	9.94	2.09	15.18	2	0.68
CEO is also Chairman of the board	48		111		
CEO is also Founder of the firm	45		74		
<b>Top Five Ranking Executives</b>					
Stock holdings/Pre-IPO shares	23.13	13.97	26.18	15.13	0.3t
Stock holdings: \$ Mil	129.567	30.218	127.639	27.562	0.97
Pre-IPO Options/Pre-IPO shares	64.17	4.07	5.13	1.43	0.08
IPO Concurrent Options/Pre-IPO shares	2.59	0	18.73	1.46	0.28
Total options/Pre-IPO shares	66.71	5.33	23.77	4.8	0.24
Observations	99		203		

**Table 4: Probit analysis of lawsuit incidence**

This table displays estimates of probit analysis of the incidence of lawsuit alleging issuance of material misleading financial information before the IPO date or within the first year following the offering. Shareholder initiated class action lawsuits are obtained from the Stanford Securities Class Action Clearinghouse. The data are from 1996 to 2006. The dependent variable is 1 if the IPO firm is facing a class action lawsuit and is zero otherwise. Data on stock and option holdings are gathered from IPO prospectuses and proxy statements covering the first fiscal year of the offering. The table presents average partial effects. Point estimates for year and industry fixed effects are not reported. I report robust standard errors clustered at the quarterly level in brackets. \*\*\*, \*\*, \* indicates that the regression coefficient is significantly different from zero at the 1%, 5%, or 10% level.

<b>Panel A: Chief Executive Officer Equity Incentives</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Pre-IPO Stock/Pre-IPO shares	-0.013 [0.022]		-0.014 [0.024]	-0.029 [0.028]	-0.031 [0.025]
Pre-IPO Options/Pre-IPO shares		0.073** [0.028]	0.068** [0.025]	0.073** [0.027]	0.086** [0.026]
IPO Concurrent Options/Pre-IPO shares		-0.104* [0.047]	-0.109* [0.046]	-0.106* [0.046]	-0.096 [0.050]
Log of Market Capitalization	0.023 [0.028]	0.029 [0.028]	0.025 [0.030]	0.025 [0.029]	0.033 [0.026]
Firm Age	-0.044 [0.031]	-0.016 [0.031]	-0.021 [0.033]	-0.015 [0.032]	-0.019 [0.029]
Book Leverage, issue quarter	-0.02 [0.089]	-0.014 [0.098]	-0.022 [0.099]	-0.018 [0.099]	0.031 [0.091]
Return on Assets, issue quarter	-0.03 [0.095]	0.002 [0.097]	0.004 [0.098]	-0.002 [0.098]	0.007 [0.089]
CEO is founder indicator				0.119* [0.057]	0.119* [0.054]
CEO is chairperson indicator				-0.02 [0.054]	-0.006 [0.044]
Venture capital backing indicator	-0.004 [0.055]	-0.014 [0.061]	-0.017 [0.062]	-0.028 [0.065]	-0.022 [0.066]
Underwriter rank	0.006 [0.012]	0.001 [0.012]	0.002 [0.012]	0.002 [0.012]	0.006 [0.013]
Observations	301	292	292	292	292

<b>Panel B: Top Five Ranking Executive Officers Equity Incentives</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Pre-IPO Stock/Pre-IPO shares	-0.029 [0.026]		-0.04 [0.031]	-0.059 [0.034]	-0.056* [0.029]
Pre-IPO Options/Pre-IPO shares		0.076** [0.018]	0.074** [0.018]	0.078** [0.018]	0.086** [0.018]
IPO Concurrent Options/Pre-IPO shares		-0.15** [0.041]	-0.15** [0.042]	-0.15** [0.044]	-0.13** [0.041]
Log of Market Capitalization	0.019 [0.029]	0.017 [0.028]	0.006 [0.031]	0.006 [0.030]	0.014 [0.026]
Firm Age	-0.05 [0.030]	-0.011 [0.031]	-0.028 [0.034]	-0.02 [0.032]	-0.021 [0.029]
Book Leverage, issue quarter	-0.03 [0.091]	0.048 [0.091]	0.026 [0.091]	0.035 [0.093]	0.08 [0.090]
Return on Assets, issue quarter	-0.03 [0.094]	0.013 [0.099]	0.024 [0.104]	0.015 [0.103]	0.021 [0.093]
CEO is founder indicator				0.124* [0.061]	0.122* [0.055]
CEO is chairperson indicator				0.016 [0.062]	0.019 [0.050]
Venture capital backing indicator	-0.009 [0.055]	-0.054 [0.066]	-0.06 [0.067]	-0.069 [0.070]	-0.053 [0.068]
Underwriter rank	0.008 [0.012]	0.001 [0.011]	0.003 [0.011]	0.004 [0.011]	0.01 [0.012]
Observations	301	292	292	292	292

**Table 5: Discretionary Accruals and Operating Performance**

The table presents the time series behavior of discretionary accruals and operating performance of IPO firms. Discretionary accruals are estimated using the modified cross-sectional Jones model, which is estimated every calendar quarter for each Fama-French industry that has at least eight observations. All variables are normalized by beginning-period net assets and industry adjusted by subtracting the median contemporaneous measures of non-IPO firms in the same Fama and French 48 industry category and asset size tercile. Operating Income is earnings before interest, taxes and depreciation. All measures are expressed in percentage points.

	<b>Qtr -1</b>	<b>Qtr 0</b>	<b>Qtr +2</b>	<b>Qtr +4</b>	<b>Qtr +6</b>	<b>Qtr +8</b>
<b>Industry Adjusted Discretionary (Abnormal) Accruals</b>						
mean	0.93%	3.90%	0.53%	0.58%	-0.32%	-0.10%
median	0.30%	0.62%	1.36%	0.85%	-0.31%	0.29%
observations	361	588	559	453	407	372
<b>Operating Income / Net Assets</b>						
mean	-12.20%	-9.64%	-5.04%	-4.41%	-3.33%	-3.41%
median	2.28%	2.51%	2.41%	1.96%	1.15%	1.18%
observations	600	692	612	575	536	512

**Table 6: Earnings Management Regressions**

The table presents OLS regression results, where the dependent variable is discretionary accruals measured in the quarter of the IPO. The sample consists of U.S. initial public offerings of stock in the years 1996-2000. Discretionary accruals are estimated using the modified cross-sectional Jones model, which is estimated every calendar quarter for each Fama-French industry that has at least eight observations. To control for industry and year determinants of earnings management, all measures are adjusted by the earnings management levels of non-IPO firms in the same Fama and French 48 industry category and asset size tercile. I report robust standard errors clustered at the quarterly level in brackets. \*\*\*, \*\*, \* indicates that the regression coefficient is significantly different from zero at the 1%, 5%, or 10% level.

<b>Panel A: Chief Executive Officer Equity Incentives</b>			
	<b>Accruals</b>	<b>Accruals</b>	<b>Accruals</b>
Pre-IPO Stock/Pre-IPO shares	-0.037 [0.015]**		-0.038 [0.017]**
Pre-IPO Options/Pre-IPO shares		0.031 [0.021]	0.021 [0.022]
IPO Concurrent Options/Pre-IPO shares		0.003 [0.032]	-0.003 [0.034]
Log of Market Capitalization	-0.065 [0.025]**	-0.058 [0.029]*	-0.068 [0.032]*
Firm Age	-0.043 [0.042]	-0.044 [0.040]	-0.051 [0.043]
Book Leverage, issue quarter	-0.03 [0.072]	-0.006 [0.087]	-0.026 [0.074]
Return on Assets, issue quarter	0.271 [0.063]***	0.292 [0.063]***	0.288 [0.061]***
CEO is founder indicator	0.057 [0.044]	0.019 [0.026]	0.063 [0.041]
CEO is chairperson indicator	0.008 [0.048]	-0.019 [0.052]	0 [0.044]
Venture capital backing indicator	0.034 [0.081]	0.036 [0.075]	0.026 [0.078]
Underwriter rank	0.018 [0.010]*	0.017 [0.011]	0.019 [0.011]
Constant	0.467 [0.186]**	0.361 [0.170]*	0.491 [0.223]*
Observations	234	227	227
R-squared	0.07	0.07	0.08



**Panel B: Top Five Executive Officers Equity Incentives**

	<b>Accruals</b>	<b>Accruals</b>	<b>Accruals</b>
Pre-IPO Stock/Pre-IPO shares	-0.018 [0.010]		-0.017 [0.013]
Pre-IPO Options/Pre-IPO shares		0.034 [0.015]**	0.012 [0.015]*
IPO Concurrent Options/Pre-IPO shares		0.013 [0.035]	0.033 [0.036]
Log of Market Capitalization	-0.062 [0.025]**	-0.056 [0.030]*	-0.061 [0.032]*
Firm Age	-0.039 [0.041]	-0.043 [0.040]	-0.045 [0.042]
Book Leverage, issue quarter	-0.013 [0.077]	-0.004 [0.071]	-0.009 [0.063]
Return on Assets, issue quarter	0.269 [0.063]***	0.303 [0.059]***	0.302 [0.057]***
CEO is founder indicator	0.021 [0.043]	0.013 [0.036]	0.027 [0.044]
CEO is chairperson indicator	-0.001 [0.054]	-0.017 [0.053]	-0.006 [0.052]
Venture capital backing indicator	0.044 [0.081]	0.034 [0.072]	0.034 [0.075]
Underwriter rank	0.018 [0.010]	0.017 [0.011]	0.018 [0.011]
Constant	0.417 [0.166]**	0.324 [0.170]*	0.387 [0.208]*
Observations	233	226	225
R-squared	0.06	0.07	0.07