Economic Determinants and Consequences of Voluntary Disclosure of Internal Control Effectiveness: Evidence from Initial Public Offerings

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by
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ABSTRACT

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This dissertation investigates the economic determinants of firms' decisions to voluntarily disclose internal control weaknesses, and the economic consequences of such disclosures, in the context of companies' initial public offerings (IPOs) of equity securities. I find that IPO firms with greater potential litigation risk and restated pre-IPO financial statements are more likely to disclose internal control weaknesses over pre-IPO financial reporting. In addition, I find that voluntary disclosure of internal control weaknesses and the related remediation procedures is negatively associated with underpricing, indicating that *ex ante* uncertainty about the new issues' value is reduced. Further, IPO firms benefit from such voluntary disclosure through increased IPO proceeds. The results also suggest that the new internal control disclosure requirements under SOX sections 302 and 404 have induced IPO firms to voluntarily disclose internal control weaknesses, contributing to lower information asymmetry between IPO firms and uninformed investors.

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CHAPTER 1

INTRODUCTION

This dissertation examines the economic determinants of firms' decisions to voluntarily disclose internal control weaknesses, and the economic consequences of such disclosures, in the context of companies' initial public offerings (IPOs) of equity securities. Specifically, I examine whether the voluntary disclosure of internal control weaknesses over pre-IPO financial reporting is associated with potential litigation risk of IPO firms and how such voluntary disclosure affects the first-day return ('underpricing') for a sample of IPOs made between January 1, 2005 and December 31, 2007.

Section 302 of the Sarbanes-Oxley Act of 2002 (SOX) requires managements of companies to evaluate the effectiveness of internal control and identify any significant changes in internal control since the previous quarter. Section 404 of SOX requires auditors to evaluate and report on clients' internal control.[1] Neither Section 302 nor Section 404 applies to IPO companies. However, firms which are seeking external funding for investment opportunities like IPO firms are more likely to voluntarily adopt and implement corporate governance rules such as the disclosure requirement for internal control effectiveness (Anand *et al*. 2006). Consistent with this, I find that some

[1] Section 302 became effective in August 2002. For accelerated filers (i.e., filers with more than $75 million in market capitalization), Section 404 became effective in November 2004. For non-accelerated filers, management's assessment of the effectiveness of internal control over financial reporting is required for fiscal years ending on or after December 15, 2007. Auditing Standard 5 (PCAOB 2007) requires auditors to provide an 'independent' report on internal control effectiveness over financial reporting in the annual reports for fiscal years ending on or after December 15, 2008. For more information, see *http://www.sec.gov/news/press/2006/2006-210.htm*.

companies voluntarily provide information about weaknesses in internal control in their registration statements prior to going public. This provides a unique opportunity to investigate firms' voluntary disclosure behavior concerning internal control effectiveness.

Additionally, under a mandatory disclosure setting, all firms are required to report the effectiveness of internal control over financial reporting. Therefore, it is difficult to identify variations in incentives and costs and benefits of the internal control disclosure. However, self-selection by IPO firms that voluntarily disclose internal control weaknesses provides a research setting for the relevant incentives and costs and benefits to be identified more clearly.

Sections 302 and 404 have been the subject of several recent studies, all of which focus on publicly traded companies. These studies document several negative consequences to disclosures of material weaknesses.[2] Hammersley *et al.* (2008) and Beneish *et al.* (2008) document negative market reactions to the disclosure of internal control weaknesses over financial reporting, implying that the existence and disclosure of internal control weaknesses affect firm value adversely. Doyle *et al.* (2007a) report that weak internal controls are associated with poor accruals quality. Other studies report that the cost of equity capital (Ashbaugh *et al.* 2007b), cost of debt (Dhaliwal *et al.* 2007), and audit fees (Raghunandan and Rama 2006; Hogan and Wilkins 2008) are higher for

[2] Auditing Standard 2 (PCAOB 2004) defines a material weakness as *"a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected."* The PCAOB has issued AS 5 (PCAOB 2007) that supersedes AS 2. AS 5 is applicable to financial statement audits for the fiscal years ending on or after November 15, 2007.

companies with internal control problems.

IPO firms are exempt from the requirements of Sections 302 and 404 during their first fiscal year as public companies. That is, requirements of Sections 302 and 404 are applicable starting with a newly formed public company's *second* annual report. The exemption clause is expected to provide IPO firms with a reasonable time to evaluate their internal control effectiveness and remedy any identified internal control weaknesses before auditors' attestation.[3] Given the negative consequences of disclosure that have been observed for publicly traded companies, one would expect IPO firms to take advantage of the exemption and rectify potential internal control problems prior to being subject to the disclosures required by Sections 302 and 404.

In this study, I investigate the following two research questions: (1) why do IPO firms voluntarily disclose internal control weaknesses over pre-IPO financial reporting?, and (2) what are the economic consequences of voluntary disclosure of internal control weaknesses over pre-IPO financial reporting?

Most sample firms in this study emphasize the importance of effective internal control as a risk factor in their prospectuses, even indicating that the weakness of internal control is a potential risk which could adversely affect their future stock prices.[4] More

[3] A new public company with one-year transition period from Section 404 of SOX also will be exempt from the related requirement of internal control disclosure under Section 302. See *http://www.sec.gov/rules/final/2006/33-8760.pdf*

[4] The Securities and Exchange Commission requires that IPO firms' registration statement must contain, among other things, information about "principal ***risk factors*** associated with the business".

importantly, many IPO firms that have discovered material weaknesses or significant deficiencies in their internal control before going public *voluntarily* disclose the weakness[5] and related current or future remediation procedures or plans.[6]

A priori, it is not surprising that many IPO firms have internal control problems. They are in the early stage of their life cycles (Ritter and Welch 2002) with an average firm age of 7 years (Loughran and Ritter 2004). Additionally, IPO firms have higher market-to-book ratios, indicating that they are growing fast (Lerner 1994; Pagano *et al.* 1998). Thus, IPO firms are small with limited economic resources, and tend to be more focused on their growth, rather than on corporate governance or their financial reporting systems. Mautz *et al.* (1980) document that small firms are more likely to have weak internal control, and suggest this may be due to limited resources such as a lack of accounting and finance personnel with GAAP knowledge. Kinney and McDaniel (1989) also provide implicit evidence that small firms are more likely to have weak internal control.

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[5] For example, in the prospectus which was filed with the SEC on May 2, 2007, NeurogesX inc describes that "*our management and auditors have identified material weaknesses in our internal controls that, if not properly remediated, could result in material misstatements in our financial statements and the inability of our management to provide its report on the effectiveness of our internal controls as required by the Sarbanes-Oxley Act of 2002, for years ending December 31, 2008 and thereafter, either of which could cause investors to lose confidence in our reported financial information and have a negative effect on the trading price of our stock*".

[6] As an example of the remediation procedure disclosure in the prospectus which was filed on April 5, 2007 with the SEC, Veraz Networks inc., describes that "*measures that have already been taken, and measures that will be taken in the future, by us to remediate the material weaknesses and significant deficiencies are grouped into the following categories: (a) hiring of additional, experienced personnel, (b) improving training, and (c) implementing appropriate internal control processes…*".

However, while IPO firms may be prone to internal control problems, it is interesting that some IPO firms voluntarily disclose internal control weaknesses over pre-IPO financial reporting, while others do not. In my first research question, I examine whether factors such as litigation risk, accounting restatement, and reputations of the underwriters and auditors affect the likelihood of voluntary disclosures. After the completion of the IPO, a firm is subject to the reporting requirements of the Securities Exchange Act of 1934, SOX, and stock market rules, and therefore potentially exposed to a litigious financial reporting environment (Verrecchia 2001). Accounting restatements are positively correlated with internal control weaknesses (Kinney and McDaniel 1989; DeFond and Jiambalvo 1991), and their announcements generate negative market reactions due to the perception of lower financial reporting quality (Palmrose *et al.* 2004). IPO firms that restate have an incentive to mitigate the negative market perception by identifying and remediating any internal control weaknesses. Therefore, I posit that IPO firms that restated their pre-IPO financial statements are more inclined to voluntarily disclose internal control weaknesses. Lastly, underwriters and auditors also have concerns about potential litigation risk related to IPOs, arising out of both litigation costs and loss of reputation. Beatty (1989; 1993) and Mayhew and Wilkins (2003) report that Big 4 or industry-specialist audit firms charge premium audit fees for IPO-related audits, suggesting that they are concerned about their reputations and/or litigation costs.

To examine the second research question, I use the first-day returns of IPO firms as a proxy for the economic consequences.[7] I posit that IPO firms prefer to voluntarily disclose internal control weaknesses over pre-IPO financial reporting in order to reduce underpricing. A private company generally goes public to raise cheaper capital from public investors (Draho 2004). However, a substantial cost of going public is the underpricing faced by most IPO firms. IPO firms can reduce the cost of underpricing by voluntarily disclosing more information (Draho 2004). Rock (1986) develops a model based on asymmetric information theory which predicts that voluntary disclosures in the prospectus are associated with less underpricing, by reducing the *ex-ante* uncertainty of the offering price. Subsequently, more voluntary disclosures reduce the uncertainty of firms' post-IPO performance.[8] Further, Willenborg and McKeown (2000) provide empirical evidence that auditors' issuance of going concern opinions on pre-IPO financial statements is negatively and significantly associated with underpricing possibly because, (as predicted by asymmetric information theory), the opinions reduce uncertainty about the firm's future performance. Based on these studies, I argue that IPO firms have strong motivation to minimize underpricing by reducing *ex-ante* uncertainty through more voluntary disclosures. Therefore, in my second research question, I examine whether voluntary disclosure of internal control weaknesses over pre-IPO financial reporting is negatively associated with IPO firms' underpricing. My empirical model includes

[7] In the relevant literature, the terms, underpricing and first-day return ('initial return') are used interchangeably (Ritter and Welch 2002).

[8] Booth *et al.* (2004) show that IPO firms can lower underpricing by selecting more prestigious underwriters.

controls for other factors affecting underpricing in order to capture the incremental effect of voluntary disclosure of internal control weaknesses in pre-IPO financial reporting.

In further analysis, I extend the second research question into two areas. First, I investigate the association between the number of internal control weaknesses and underpricing. I posit that more specific voluntary disclosures lower underpricing by further reducing information asymmetry. Second, I examine the association between voluntary disclosures related to remediation procedures of the identified internal control weaknesses and underpricing. Once again, I expect a negative association, because the remediation procedures are likely to signal enhanced reliability of financial reporting quality and thus reduce *ex ante* uncertainty of future IPO firm value.

This study contributes incrementally to the research streams of firms' voluntary disclosure behavior as well as the effectiveness of internal control over financial reporting under Sections 302 and 404 of SOX. First, while concurrent studies of Sections 302 and 404 of SOX have focused on publicly-traded firms, I investigate the economic determinants and consequences of *voluntary* disclosure of internal control effectiveness in an IPO setting. The results provide additional evidence of how an important new regulation influences unaffected firms' voluntary disclosure behavior. Ball and Shivakumar (2008) find that, as U.K. IPO firms approach their IPO date, their earnings are more conservative, suggesting that the higher financial reporting standard with which public companies comply leads IPO firms to produce higher earnings quality. Similar to Ball and Shivakumar (2008), my dissertation investigates the effect of mandatory corporate governance rules on unaffected private companies' financial reporting quality

in the context of voluntary disclosure of internal control weaknesses by U.S. IPO firms.

Second, extending voluntary disclosure behavior research, this study provides additional evidence of what economic determinants affect firms' decisions to voluntarily disclose internal control weaknesses for previously unanalyzed IPO firms. For a sample of public companies that voluntarily disclose internal control weakness, Ashbaugh-Skaife *et al*. (2007a) do not find a significant association between litigation risk and internal control weakness disclosure. However, this study finds that IPO size measured by IPO proceeds, a proxy for *ex ante* litigation risk (Willenborg 1999), is positively and significantly associated with IPO firms' voluntary disclosure of internal control weaknesses over pre-IPO financial reporting. Third, adding to research on underpricing of IPOs, this study shows the effect of voluntary disclosure of internal control weaknesses on underpricing. Additionally, this study complements Leone *et al.* (2007) by examining how more specific voluntary disclosures of internal control weaknesses affects underpricing.

The rest of this dissertation is organized as follows. In the next chapter, I summarize the timeline of IPOs. In the third chapter, I review the relevant literature and develop my hypotheses. In the fourth chapter, I describe sample and data collection. The empirical model is specified in the fifth chapter. The empirical results of economic determinants of voluntary disclosure of internal control weaknesses are reported in the sixth chapter. In the seventh chapter, I report the empirical results of the association between underpricing and voluntary disclosure of internal control weaknesses. In the concluding chapter, I summarize this study.

CHAPTER 2

THE IPO PROCESS

An initial public offering (IPO) is the process by which a private company sells its shares to new public investors for the first time in its history (Draho 2004). There are two types of IPOs: (1) a primary offering, and (2) a secondary offering. In a primary offering, IPO firms issue new shares to, and receive proceeds from, new investors. In a secondary offering, pre-IPO shareholders sell their own shares to and receive proceeds from new investors (PWC 2005). A private company can benefit from going public by increased access to external funds (e.g., equity, convertible bonds) and by attracting more capable management and employees (Ljungqvist 2004). There are many challenges that the process of going public entails. IPO companies incur large IPO-related expenses and must deal with issues relating to decentralization of ownership, compliance with many corporate governance rules (e.g., SOX), scrutiny by regulators and analysts, and the litigation risk associated with shareholders (PWC 2005; Ball and Shivakumar 2008).

The IPO timeline can be divided into three phases: 1) period prior to filing the registration statement, 2) period for SEC's review of the registration, and 3) period for marketing the new issue (Pott 2000). At the pre-filing stage, underwriters and auditors are appointed.[9] The decision of selection of underwriters and auditors is made based on the relevant costs and benefits. Although hiring prestigious underwriters and Big 4 auditors can increase the cost of going public, IPO firms can achieve lower underpricing by reducing information asymmetry which can result from higher IPO quality represented by

[9] The auditors attest two-year balance sheets and three-year income statements before the expected IPO date (Blowers *et al*. 1999; PWC 2005).

their reputation.[10]

Issuers, underwriters, auditors, and other experts (e.g., legal counsel) prepare the preliminary registration statement (Form S-1) to be filed with the SEC. Due diligence is required for the preparation of S-1 registration statement. In the context of IPOs, due diligence is defined as the process of gathering business, financial, and legal information related to IPO firms (Earles 2004). The information collected is used as the foundation of S-1 registration statement. Through the due diligence process, underwriters and auditors are required to ensure that all IPO relevant information is disclosed accurately and completely. Additionally, due diligence is critical in assessing legal liability of underwriters and auditors. The legal liability of underwriters and auditors related to IPOs is described in Sections 11 and 12 of the Securities Act of 1933 (Draho 2004). Stakeholders such as issuers, underwriters, and auditors are collectively and jointly liable for the damages caused by IPOs. Usually, auditors are primary targets of the lawsuits (Draho 2004). However, under Sections 11 and 12 of the Securities Act of 1933, only due diligence conducted reasonably can protect underwriters and auditors from IPO-related litigation. However, the company is strictly liable for omissions and misstatements of material information in the registration statement (Blowers *et al*. 1999).

Following the filing of the registration statement with the SEC, IPO firms are expected to receive a letter of comment (Form 'UPLOAD') on the registration statement from the SEC. Based on the registration statement, the SEC can request more explanation

[10] Numerous prior studies (e.g., Johnson and Miller 1988; Meggison and Weiss 1991; Carter and Manaster 1990; Beatty 1989, 1993; Mayhew and Wilkins 2003) provide evidence of a negative association between the reputation of underwriters and auditors and underpricing.

or additional disclosure on particular items. In response to the SEC's comments, IPO firms might prepare and submit an amended registration statement to the SEC.

At the same time, IPO firms begin marketing activities such as the distribution of preliminary prospectus to investors and road shows. After the SEC approves the resubmitted registration statement and declares the effective date of the offering (Form 'EFFECT'), new issues can be traded from the next day of the effective date of Form 'EFFECT'.

CHAPTER 3

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1 Background and Accounting Literature on Voluntary Disclosure

Since Sections 302 and 404 of SOX do not apply to pre-IPO financial reporting, IPO firms can choose whether or not to *voluntarily* disclose internal control weaknesses over pre-IPO financial reporting in their prospectuses. Moreover, IPO firms have a one-year exemption from Sections 302 and 404 of SOX following the completion of the IPO.[11] However, as discussed, some IPO firms voluntarily disclose identified internal control weaknesses in their prospectuses.

In the context of IPOs, I argue that one of the most important incentives to discover and disclose internal control weakness is potential litigation risk.[12] After the IPO, firms will be exposed to a more litigious financial reporting environment in which their financial statements and financial reporting will be thoroughly scrutinized by regulators and the markets. The voluntary disclosure of internal control weaknesses and remediation procedures will reduce potential litigation risk by signaling to potential investors that the reliability of financial information has been enhanced by identifying internal control weaknesses and subsequently remediating them.

Numerous studies (e.g., Grossman and Hart 1980; Grossman 1981; Verrecchia

[11] However, the Securities Exchange Act of 1934 requires firms issuing new stocks to disclose all material information related to the issuance to potential investors (Choi 2007).

[12] According to Choi (2007), of the 3,776 IPO firms from 1990 to 1999, 191 (5.06%) IPO firms were sued. Of the 191 IPO firms that were sued, shares of 139 (72.77%) were listed on NASDAQ.

2001) that have analytically and empirically examined why management voluntarily discloses or withholds important information argue that firms have incentives to fully disclose material information. Verrecchia (2001) indicates that, in spite of the management exercising its discretion over the disclosure of non-mandatory information, management's truthful disclosure can be expected from the viewpoint of reducing potential litigation risk. Grossman (1981) also documents that sellers have sufficient incentive to fully disclose all material information to buyers to avoid and/or reduce potential litigation risk, even if the information disclosure is not mandatory.

Considering that IPO firms have to comply with new requirements as new public companies, I conjecture that potential litigation risk compels IPO firms to voluntarily disclose internal control weakness. Therefore, I hypothesize that (stated in the alternative form):

> H1: *After controlling for other known effects, IPO firms with higher potential litigation risk are more likely to voluntarily disclose internal control weaknesses over pre-IPO financial reporting in their prospectus than those with lower litigation risk.*

Accounting restatement has been regarded as a strong indicator of ineffective financial reporting, including internal control (Kinney and McDaniel 1989; DeFond and Jiambalvo 1991). Further, financial markets perceive accounting restatements as evidence of lower quality of financial reporting (Palmrose *et al.* 2004). In addition, accounting restatements have other economic consequences such as bankruptcy and delisting (Palmrose and Scholz 2004). I expect that restating IPO firms have incentives to mitigate such penalties as negative market reactions and economic consequences by signaling to the markets that they have made great efforts to enhance their financial reporting quality

by establishing and maintaining effective internal control as newly public companies. Recently, Ashbaugh-Skaife *et al.* (2007a), using a sample of publicly traded companies, also report that companies that restate their financial statements have a strong incentive to disclose internal control weaknesses.

Therefore, I hypothesize (in alternative form) that:

> H2: *After controlling for other known effects, IPO firms that restate pre-IPO financial statements are more likely to voluntarily disclose internal control weaknesses over pre-IPO financial reporting in their prospectus than those that do not restate their financial statements.*

So far, I have discussed what economic determinants affect IPO firms' voluntary disclosure of internal control weaknesses from the viewpoint of potential litigation risk and their own accounting restatements. The prospectuses of many IPO firms that voluntarily disclose their internal control weaknesses frequently report that internal control weaknesses were identified by auditors and reported directly to the management and board of directors or indirectly through the audit committee. External auditors, especially Big 4 auditors, have strong incentives to avoid potential litigation risk (Kellogg 1979; St. Pierre and Anderson 1984; Simunic and Stein 1996).[13] Empirical studies (e.g., Balvers *et al*. 1988; Beatty 1989, 1993; Beatty and Welch 1996; Hogan 1997; Mayhew and Wilkins 2003) indicate that the Big 4 auditors have greater concern about their reputation. Therefore, I conjecture that IPO firms are forced to voluntarily

[13] Palmrose (1988) reports that four to five times more lawsuits were filed against Big Eight auditors than non-Big Eight auditors during the period 1960-1985. When scaled by estimated number of clients or audit revenues however, Big Eight auditors were less likely to be sued than non-Big Eight auditors. After controlling for other factors, Stice (1991) finds that the probabilities of Big Eight and non-Big Eight auditors being sued are not statistically different, whereas Heninger (2001) reports weak evidence that Big Eight auditors are likely to be sued.

disclose internal control weaknesses identified by their external auditor.

I hypothesize that (stated in the alternative form):

> H3: *After controlling for other known effects, IPO firms with Big 4 auditors are more likely to voluntarily disclose internal control weaknesses over pre-IPO financial reporting in their prospectus than those with non-Big 4 auditors.*

Along with external auditors, underwriters are also closely involved in IPO procedures and are liable for IPO firms' offering price and related disclosures (Draho 2004). Studies (e.g., Ibbotson 1975; Ritter 1984; Beatty and Ritter 1986) show that underwriters place much emphasis on their reputation in the process of underwriting IPOs.

Therefore, I hypothesize that (stated in the alternative form):

> H4: *After controlling for other known effects, IPO firms with prestigious underwriters are more likely to voluntarily disclose internal control weaknesses over pre-IPO financial reporting in their prospectus than those with other underwriters.*

3.2 The Effect of Voluntary Disclosure of Internal Control Weaknesses on Underpricing

Numerous studies (e.g., Stoll and Curley 1970; Reilly 1973; Logue 1973; Ibbotson 1975) find that generally, the first-day returns of IPOs of operating companies are systematically positive. This phenomenon is called underpricing.[14] In this section, I discuss the effect of the voluntary disclosure of internal control weaknesses on underpricing.

[14] Ritter and Welch (2002) study 6,249 IPOs during 1980 to 2001 and document that "the average first-day return is 18.8 percent and 70 percent of the IPOs end the first day of trading at a closing price greater than the offer price and about 16 percent have a first-day return of exactly zero".

Ritter and Welch (2002) review several prior explanations for underpricing such as signaling, agency, litigation, irrationality, and asymmetric information. Leone *et al.* (2007) argue that asymmetric information theory is the most appropriate for explaining the relationship between voluntary disclosure and underpricing.[15] Therefore, I rely on asymmetric information theory for testing my research questions. Rock (1986) provides a model of why new issues are underpriced. Uninformed investors are faced with uncertainty about new issues. The uncertainty results from information asymmetry among issuing firms, underwriters, and informed and uninformed investors. Therefore, in order to attract uninformed investors and complete new issues successfully, issuing firms have an incentive to lower offering prices, resulting in underpricing.

Testing Rock (1986)'s model, Ritter (1984) documents that riskier new issues are more underpriced "to compensate investors for the costs of becoming informed." Ritter (1984) regards the risk in Rock (1986)'s model as arising out of the difficulty in valuing the new issue, implying that *ex ante* uncertainty regarding the firm value is positively correlated with underpricing.

Formalizing "the equilibrium relation between expected underpricing and the uncertainty that uninformed investors have regarding the true value of the IPO shares" (Leone *et al.* 2007), Beatty and Ritter (1986) provide an important empirical implication that the expected underpricing is positively associated with the range of possible after-market prices. Denoting the expected true value of a new issue by *v* and offering price by *op*, and assuming that *v* is in the range between *a* ('minimum after-market price') and *b*

[15] Leone *et al.* (2007) document that other theories such as signaling, agency, litigation, and irrationality have "mixed results" or focus on "high underpricing of internet IPOs".

('maximum after-market price'), Beatty and Ritter (1986) define underpricing as [E(*v*)-*op*]/*op*. The range (*b*-*a*) represents the uncertainty of the new issue. Beatty and Ritter (1986) show that underpricing, [E(*v*)-*op*]/*op* is positively correlated with uncertainty, (*b*-*a*) .

Based on asymmetric information theory, I argue that the voluntary disclosure of internal control weaknesses accompanied by disclosures about current or future remediation procedures decreases uncertainty about future stock price by giving specific information to uninformed investors thus decreasing the range of after-market prices. Concurrent studies (e.g., Ashbaugh *et al*. 2007b; Beneish *et al.* 2008; Hammersley *et al.* 2008) for public companies report that the disclosure of internal control weaknesses causes negative market reaction and higher cost of equity, implying an adverse effect of the disclosure on firm value. However, I conjecture that subsequent remediation procedures (or plans) of identified internal control weaknesses can offset the adverse effect on firm value.[16]

Furthermore, the voluntary disclosure of both internal control weaknesses and their remediation procedures is effective in reducing uncertainty of IPO firms' value, thereby resulting in less underpricing. Prior studies (e.g., Willenborg and McKeown 2000; Leone *et al.* 2007) provide evidence that more IPO-related information lowers underpricing by reducing *ex ante* uncertainty about IPO firms' future value. Therefore, the hypothesis regarding the effect of material weakness disclosures on IPO firms' underpricing is (stated in the alternative form):

[16] In my sample, all IPO firms which voluntarily disclose internal control weaknesses in their prospectuses also disclose ongoing remediation procedures or future remediation plans.

H5: *After controlling for other known effects, the issues of IPO firms which voluntarily disclose internal control weaknesses over pre-IPO financial reporting accompanied by disclosure about its remediation procedures are less underpriced than those without such disclosures.*

As discussed in the previous section, prior studies (e.g., Kinney and McDaniel 1989; DeFond and Jiambalvo 1991; Li and Wang 2006) indicate that accounting restatement is a strong sign of ineffective financial reporting, including internal control. Consistent with this, in my sample, of the 102 IPO firms which voluntarily disclose internal control weakness, 44 (43%) restated their prior financial statements due to accounting errors detected by management or auditors. Additionally, Palmrose *et al.* (2004) and Palmrose and Scholz (2004) report that accounting restatements cause negative market reactions and economic consequences. However, Ball and Shivakumar (2008) document that IPO firms, before going public frequently restate previous financial statements to meet higher quality financial reporting.

Therefore, I expect that like internal control weakness disclosure, accounting restatements and subsequent actions (e.g., identification of internal control weaknesses and remediation procedures) can be positively perceived by new investors and then reduce uncertainty of the IPO firm value.

Therefore, I hypothesize that:

H6: *After controlling for other known effects, the issues of IPO firms that had previously restated their financial statements and disclosed internal control weaknesses and remediation measures will be less underpriced than those without restatements or disclosures about internal control weaknesses or remediation procedures.*

While the disclosure of internal control weaknesses in the prospectus is a direct indicator of weak internal control, disclosures of accounting restatements can be regarded

as an indirect indicator of ineffective internal control. Taken together, the disclosure of either internal control weakness or restatements due to accounting error can be regarded as a strong signal of the ineffectiveness of internal control over financial reporting.

3.3 The Association between Underpricing and the Specificity of Voluntary Disclosure of Internal Control Weaknesses and their Remediation Procedures

I find variation in the details about internal control weaknesses that are disclosed by the sample firms, with some IPO firms describing internal control weaknesses in some detail, and others not specifying what internal control weaknesses had been identified. Asymmetric information theory would suggest that more specific disclosure will be more effective in reducing uncertainty of IPO firms' future value. For example, Leone *et al*. (2007) find that more specific voluntary disclosure of the intended use of proceeds from IPOs lowers underpricing.

Therefore, I hypothesize (stated in the alternative form):

> H7: *After controlling for other known effects, IPO firms which make more specific voluntarily disclosures about internal control weaknesses and remediation procedures are likely to have less underpricing compared to those that make less specific disclosures.*

Also, most IPO firms which disclose internal control weaknesses have completed or are undertaking remediation procedures as of the IPO date. Some IPO firms explicitly disclose that all internal control weaknesses identified during the past pre-IPO fiscal years have been remediated, indicating no internal control weakness as of the IPO date. Other IPO firms disclose that they are still remediating the weaknesses. The market will likely react differently to the progress of remediation procedures of each IPO firm. Specifically, potential investors may perceive that IPO firms whose remediation

procedures have been completed have more reliable financial reporting than IPO firms whose remediation procedures are still under progress.

Therefore, I hypothesize (stated in the alternative form):

> H8: *After controlling for other known effects, IPO firms whose remediation procedures for internal control weaknesses over pre-IPO financial reporting have been completed are likely to have less underpricing than those that have not completed the remediation procedures.*

CHAPTER 4

SAMPLE AND DATA

I identified an initial sample of IPO companies with firm commitment offerings made between January 1, 2005 and December 31, 2007 from the IPO Center.[17] Disclosures relating to internal controls (including the number of internal control weaknesses and remediation procedures), restatement, IPO size, auditor, underwriter and the number of risk factors were hand-collected from the prospectus available at the SEC's website. The market return data of each stock exchange were obtained from Yahoo Finance (http://finance.yahoo.com). As shown in Table 1, I use 347 sample IPO firms to test the hypotheses related to economic determinants of voluntary disclosure of internal control weakness and investigate the effect of voluntary disclosure of internal control weakness on underpricing. Following prior studies, I excluded financial institutions (SIC Codes 6000-6999), ADRs (American Depository Receipts) issued by foreign firms, small IPOs, unit IPOs, and partnerships.[18]

[17] For more details, see the website: http://moneycentral.hoovers.com/global/msn/index.xhtml?pageid=10021. I initially started with IPOs issued on or after January 1, 2004. I could identify only three cases during 2004 where internal control weaknesses had been disclosed by IPO firms in their prospectus. However, the number of such disclosures has increased considerably in 2005. This suggests that SOX 302 and 404 requirements may have increased awareness of material weaknesses triggering voluntary disclosures of these problems.

[18] Small IPOs are defined as offerings at a price below $5. Unit IPOs are offerings of common shares with an option and/or a warranty.

Table 1. Sample selection procedure

Description	Sample
Firms that made IPOs between 01/01/2005 and 12/31/2007	590
Excluding Financial Institutions (SIC Codes 6000-6999), Foreign Firms issued ADR (American Depository Receipt), Unit IPO Firms [a], Small IPO Firms [b], Partnership IPO Firms	(187)
IPO Firms whose prospectuses are not available on EDGAR	(6)
Carter & Manaster underwriter reputation index is not available [c] and missing financial and business complexity variables	(50)
Final Sample	347

[a] Unit IPOs are offerings of common shares with an option and/or a warranty.

[b] Small IPOs are defined as offerings at a price below $5.

[c] The data of underwriter reputation index are obtained from the following website: http://bear.cba.ufl.edu/ritter/ipodata.htm

Panel A of Table 2 provides the industry distribution of the sample. 102 of 347 (29.39%) IPO firms voluntarily disclose that they had or have internal control weaknesses. For comparison purposes, I include the industry distribution from Ge and McVay (2005) whose sample comprises companies with market capitalization greater than $75 million. The distribution of internal control weaknesses across industries is similar (within +/- 10%) to that reported in Ge and McVay (2005). Compared to the population of large firms in Ge and McVay (2005), the proportion of companies in Drugs and Medical Equipment, Chemicals, and Transportation industries is higher and of those in the computer industry is lower in the IPO sample. Table 2, Panel B shows yearly distribution of IPO sample firms. The IPO firms are almost evenly distributed during the sample period. Compared to year 2005 (21.85%), a larger proportion of IPO firms voluntarily disclosed internal control weaknesses over pre-IPO financial reporting in

2006 (33.05%) and 2007 (33.64%).

Table 2, Panel C provides breakdown of the IPO into three categories: those that were underpriced, those that were overpriced, and those that were priced exactly. 74.06% (257/347) and 69.16% (240/347) of IPO sample firms' shares are underpriced based on closing and opening prices, respectively. About 15.69% (16/102) and 6.86% (7/102) of "VICW" firms' shares are overpriced, based on closing and opening prices, respectively.

Table 2, Panel D provides the exchange distribution of the sample. About 70% (242/ 347) of recent IPO firms listed their stocks on NASDAQ of which 28.10% (68/242) disclosed internal control weaknesses. In contrast, a larger percentage (33.33%, i.e., 32/96) of NYSE firms disclosed internal control weaknesses. Only 2 of 9 (22.22%) IPO firms on American Stock Exchange (AMEX) reported internal control weaknesses. Table 2, Panel E provides descriptive statistics for IPO size for each stock exchange. Among IPO firms listed on NYSE, the mean IPO size of firms with voluntary disclosure of internal control weaknesses is smaller than that of IPO firms without voluntary disclosures ($349.823 vs. $473.240 millions). In contrast, NASDAQ IPO firms that voluntarily disclose internal control weaknesses are slightly larger on average than those that do not (Mean: $119.448 vs. $97.417 millions). Not surprisingly, NYSE IPO firms have a larger IPO size than NASDAQ IPO firms (Mean: $390.962 vs. $103.615 millions). Table 2, Panel F shows that 73 of 102 (71.57%) IPO firms which voluntarily disclose internal control weaknesses are below $200 million in IPO size. Of these 73 IPO firms, 61 (83.56%) IPO firms' shares are listed on NASDAQ.

According to Panel G of Table 2, of the 347 sample firms, 66 (19.02%) IPO firms

restated their prior financial statements.[19] Of the 102 IPO firms which voluntarily disclosed internal control weakness, 44 firms (43.14%) reported that they restated prior financial statements and 83 (81.37%) disclosed that they have at least one material internal control weakness. Table 2, Panel H shows that the mean and median of identified material weaknesses are 2.43 and 2.00, respectively; 60 (58.82%) IPO firms disclose that they identified from one to three material weaknesses.

As shown in Table 2, Panel I, most internal control weaknesses were initially identified during the audit by the companies' auditors (70.59%, 72 of 102 IPO firms), suggesting that auditors are concerned about potential litigation risk and their reputations. In Table 2, Panel J, 82 (80.39%) of 102 IPO firms disclose that the identified internal control weaknesses are still being remediated as of the IPO date. Sixteen (15.69%) IPO firms disclose that all identified material weaknesses have been remediated, suggesting no internal control weakness on the IPO date.

[19] In this study, I focus only on the accounting restatement caused by errors (e.g., clerical and computation errors, misapplication of GAAP). I ignore restatements caused by pooling transactions, stock split, and the adoption of new accounting rules.

Table 2. Sample distribution

Panel A: Industry distribution

Industry [a]	N	(%)	VICW	(%)	NO_VICW	(%)	*Diff* (ICW-NO_ICW)	Ge and McVay's MW Sample[b]	(%)
Mining and Construction	2	(0.58)	1	(0.98)	1	(0.41)	0.57	7	(3.24)
Food	6	(1.73)	0	(0.00)	6	(2.45)	-2.45	3	(1.39)
Textiles, Printing, and Publishing	11	(3.17)	5	(4.90)	6	(2.45)	2.45	5	(2.31)
Drugs and Medical Equipment	69	(19.88)	20	(19.61)	49	(20.00)	-0.39	21	(9.72)
Chemicals	10	(2.88)	4	(3.92)	6	(2.45)	1.47	3	(1.39)
Refining and Extractive	18	(5.19)	5	(4.90)	13	(5.31)	-0.41	9	(4.17)
Rubber, Leather, and Metal	10	(2.88)	2	(1.96)	8	(3.26)	-1.31	13	(6.02)
Industrial Equipment	8	(2.31)	4	(3.92)	4	(1.63)	2.29	12	(5.56)
Electrical Equipment	8	(2.31)	3	(2.94)	5	(2.04)	0.90	9	(4.17)
Miscellaneous Equipment	11	(3.17)	6	(5.88)	5	(2.04)	3.84	19	(8.79)
Computers	71	(20.46)	21	(20.59)	50	(20.41)	0.18	51	(23.61)
Transportation	37	(10.66)	13	(12.75)	24	(9.80)	2.95	13	(6.02)
Utilities	5	(1.44)	2	(1.96)	3	(1.22)	0.74	7	(3.24)
Retail	28	(8.07)	4	(3.92)	24	(9.80)	-5.88	17	(7.87)
Services	53	(15.27)	12	(11.77)	41	(16.73)	-4.97	27	(12.50)
Total	347	(100.00)	102	(100.00)	245	(100.00)		216	(100.00)

[a] Following Ge and McVay (2005), the SIC codes are Mining and Construction: 1000-1299, 1400-1999; Food: 2000-2199; Textile, Printing, and Publishing: 2200-2799; Drugs and Medical Equipment: 2830-2839, 3840-3851; Chemicals: 2800-2829, 2840-2899; Refining and Extractive: 1300-1399, 2900-2999; Rubber, Leather, and Metal: 3000-3499; Industrial Equipment: 3500-3569, 3580-3659; Electrical Equipment: 3660-3669, 3680-3699; Miscellaneous Equipment: 3700-3839, 3852-3999; Computers: 3570-3579, 3670-3679, 7370-7379; Transportation: 4000-4899; Utilities: 4900-4999; Retail: 5000-5999; Services: 7000-7369, 7380-8999.

[b] 22 financial institutions (SIC Codes 6000-6999) are excluded from the Ge and McVay's (2005) sample of 238 MW firms.

Table 2. (continued)

Panel B: Yearly IPO firms

		IPO Year						Total	
		2005		2006		2007			
		N	(%)	N	(%)	N	(%)	N	(%)
Num of IPO Firms:		119	(100.00)	118	(100.00)	110	(100.00)	347	(100.00)
Stock Exchange:									
NYSE		41	(34.45)	27	(22.88)	28	(25.45)	96	(27.67)
AMEX		7	(5.88)	2	(1.70)	0	(0.00)	9	(2.59)
NASDAQ		71	(59.67)	89	(75.42)	82	(74.55)	242	(69.74)
Voluntary ICW Disclosure:									
VICW		26	(21.85)	39	(33.05)	37	(33.64)	102	(29.39)
NO_VICW		93	(78.15)	79	(66.95)	73	(66.36)	245	(70.61)

Panel C: Yearly underpricing and overpricing

	IPO Year						Total			
	2005		2006		2007					
	Closing Price	Opening Price	Closing Price	Opening Price	Closing Price	Opening Price	Closing Price	VICW	Opening Price	VICW
Underpricing	89	89	89	82	79	69	257	77	240	69
Exact pricing	10	18	7	26	4	27	21	9	71	26
Sub Total	99	107	96	108	83	96	***278***	***86***	***311***	***95***
Overpricing	20	12	22	10	27	14	69	16	36	7
Total	119	119	118	118	110	110	347	102	347	102

Table 2. (continued)

Panel D: Exchange listing of sample firms

Exchange	N	(%)	VICW	(%)	NO_VICW	(%)	VICW/N(%)
New York Stock Exchange	96	(27.67)	32	(31.37)	64	(26.12)	**33.33**
American Stock Exchange	9	(2.59)	2	(1.96)	7	(2.86)	**22.22**
NASDAQ	242	(69.74)	68	(66.67)	174	(71.02)	**28.10**
Total	347	(100.00)	102	(100.00)	245	(100.00)	

Panel E: Descriptive statistics of IPO size and exchange

	NYSE			AMEX			NASDAQ		
	Total	VICW	NO_VICW	Total	VICW	NO_VICW	Total	VICW	NO_VICW
N	96	32	64	9	2	7	242	68	174
IPO size[c]:									
Mean	390.962	473.240	349.823	17.558	17.125	17.681	103.615	119.448	97.417
Median	268.594	361.582	248.360	17.050	17.125	17.050	83.975	100.000	80.000
Std Dev	348.286	379.962	326.680	7.064	3.005	8.059	85.730	94.198	81.639
Max	2399.316	1385.227	2399.316	31.500	19.250	31.500	798.000	600.000	798.000
Min	57.375	57.375	62.500	7.000	15.000	7.000	10.200	20.100	10.200

[c] IPO size is represented by the total proceeds which are measured by actual offer share price×the number of shares offered.

Table 2. (continued)

Panel F: Distribution of internal control weakness, IPO size, and stock exchange

IPO Size (Million)	New York Stock Exchange						American Stock Exchange						NASDAQ					
	N	(%)	ICW	(%)	NO_ICW	(%)	N	(%)	ICW	(%)	NO_ICW	(%)	N	(%)	ICW	(%)	NO_ICW	(%)
< 50	0	0	0	0	0	0	9	100	2	100	7	100	54	22.32	13	19.12	41	23.56
50 – 100	7	7.29	4	12.50	3	4.69	0	0	0	0	0	0	93	38.43	20	29.41	73	41.95
100 – 150	10	10.42	2	6.25	8	12.50	0	0	0	0	0	0	55	22.73	17	25.00	38	21.84
150 – 200	15	15.63	4	12.50	11	17.19	0	0	0	0	0	0	19	7.85	11	16.18	8	4.60
200 – 250	12	12.50	2	6.25	10	15.63	0	0	0	0	0	0	11	4.55	3	4.41	8	4.60
250 – 300	9	9.38	3	9.38	6	9.38	0	0	0	0	0	0	3	1.24	1	1.47	2	1.15
300 – 400	6	6.25	1	3.13	5	7.81	0	0	0	0	0	0	4	1.65	1	1.47	3	1.72
400 – 500	12	12.50	3	9.38	9	14.06	0	0	0	0	0	0	1	0.41	1	1.47	0	0
500 – 600	7	7.29	3	9.38	4	6.25	0	0	0	0	0	0	0	0	0	0	0	0
600 – 700	8	8.33	3	9.38	5	7.81	0	0	0	0	0	0	1	0.41	1	1.47	0	0
700 – 800	2	2.08	1	3.13	1	1.56	0	0	0	0	0	0	1	0.41	0	0	1	0.57
> 800	8	8.33	6	18.75	2	3.12	0	0	0	0	0	0	0	0	0	0	0	0
Total	96	100	32	100	64	100	9	100	2	100	7	100	242	100	68	100	174	100

Panel G: Frequency of sample firms with internal control weaknesses and/or accounting restatement

	Number of Firms	(%)
VICW	102	(29.39)
Restate	66	(19.02)
VICW_Only	58	(16.71)
Restate_Only	22	(6.34)
Restate_and_VICW	44	(12.68)
Restate_or_VICW	124	(35.73)

Table 2. (continued)

Panel H: Descriptive statistics of the number of internal control weaknesses disclosed

	Material Weakness		Significant Deficiency		Control Deficiency	
Number of ICW	Number of Firms	(%)	Number of Firms	(%)	Number of Firms	(%)
1	27	(32.53)	7	(25.93)	2	(40.00)
2	16	(19.28)	9	(33.34)	2	(40.00)
3	17	(20.48)	6	(22.22)	-	-
4	4	(4.82)	2	(7.41)	-	-
5	6	(7.23)	1	(3.70)	-	-
6	7	(8.43)	1	(3.70)	-	-
7	2	(2.41)	1	(3.70)	-	-
8	2	(2.41)	-	-	-	-
9	-	-	-	-	-	-
10	2	(2.41)	-	-	-	-
11	-	-	-	-	1	(20.00)
N	83	(100.00)	27	(100.00)	5	(100.00)
Mean	2.431		0.676		0.167	
Median	2.000		0		0	
Std Dev	2.297		1.380		1.126	
Max	10		7		11	
Min	0		0		0	

Panel I: Frequency of who initially identified internal control weakness

ICW identified by	Frequency	(%)
Auditor	72	(70.59)
Management	21	(20.59)
Auditor and Management	9	(8.82)
N	102	(100.00)

Panel J: Status of remediation procedures as of the IPO date

Remediation Status	Frequency	(%)
Remediation Completed	16	(15.69)
Remediating	82	(80.39)
Not taking any remediation action	4	(3.92)
N	102	(100.00)

CHAPTER 5

RESEARCH DESIGN

5.1 Probability of the Existence of Internal Control Weaknesses

As Ashbaugh *et al*. (2007a) note, internal control weaknesses are reported if (1) they exist and (2) if managers decide to disclose them. However, my dissertation focuses on the voluntary disclosure of, rather than the existence of, internal control weaknesses. Therefore, I cannot rule out the possibility that some firms that identified internal control weaknesses decided not to disclose the internal control weaknesses in their prospectus or that some firms did not identify and disclose internal control weaknesses due to the inapplicability of the requirement of Section 404 of SOX.

To address this issue, I develop a prediction model of the likelihood of firms having internal control weaknesses using a sample of firms that recently went public and are subject to Section 404 of SOX.

$$\text{Prob(ICW =1)} = F(\alpha_0+\beta_1 \text{Segments}_{it}+ \beta_2 \text{Loss}_{it}+\beta_3 \text{Sales\_Growth}_{it} +\beta_4 \text{Auditor\_Resign}_{it}+ \beta_5 \text{LN(MV)}_{it}) \quad (1)$$

where F (·) is the cumulative distribution function of the logistic distribution. The definition of variables is as follows:

Dependent variable:

ICW = One if the firm discloses internal control weaknesses under Section 404 of SOX and zero otherwise.

Proxies for the existence of internal control weaknesses:

Segments = The sum of the number of business and geographic segments.

Loss = The proportion of years with net loss during the last three years.

Sales_Growth	=	Average sales growth during the last three years.
Auditor_Resign	=	One if the auditors resigned, and zero otherwise.
LN(MV)	=	Ln (Market Value), where market value is computed by stock price at the fiscal year end (Compustat #199)×the number of shares outstanding (Compustat #25).

The dependent variable, ICW, is coded one if a firm reported one or more internal control weaknesses under Section 404 of SOX, and zero otherwise. Following Ashbaugh-Skaife *et al.* (2007a), I use five variables to capture the probability that an internal control weakness exists. The five variables are Segments, Loss, Sales_Growth, Auditor_Resign, and LN(MV). Specifically, I control for business complexity, profitability, growth rate, business & financial risk, and firm size. Ashbaugh-Skaife *et al.* (2007a) report that small firms and firms with more complexity, lower profitability, higher growth rate, and whose auditors resign are more likely to have internal control weaknesses.

To estimate the prediction model above, I use the IPO firms which went public from January 1, 2002 to December 31, 2004. The initial sample was identified from the IPO Center provided by MSN.com. 410 IPO firms are used to estimate equation (1). Internal control weaknesses and auditor changes data were obtained from AuditAnalytics. Financial and segment data were obtained from COMPUSTAT.

The logistic regression result is presented in Table 3, Panel A. Only firm size (LN(MV)) is negatively and significantly associated with the existence of internal control weakness. The other variables have expected signs but are not statistically significant. Therefore, to test the validity of the prediction model, I conduct discriminant analysis.

Table 3. ICW prediction model

Panel A: Logistic regression result

Variable	Expected sign	Model 1	
		Coefficient	t-statistics
Proxies for the existence of internal control weaknesses:			
Intercept	?	0.088	0.11
Segments	+	0.036	0.66
Loss	+	0.071	0.22
Sales_Growth	+	0.014	1.08
Auditor_Resign	+	0.600	0.79
LN(MV)	-	-0.256**	-2.18
Likelihood Ratio		10.43*	
Highest VIF		1.37	
N		410	

Panel B: Univariate analysis of Prob(ICW)

	VICW	NO_VICW
Mean	0.232	0.222
Median	0.213	0.216
Std Dev	0.115	0.060
Min	0.090	0.118
Max	0.999	0.824
N	102	245

Where:

ICW = One if the firm discloses internal control weakness under Section 404 of SOX and zero otherwise.

Proxies for the existence of internal control weakness:

Segments = The sum of the number of business and geographic segments.

Loss = The proportion of years with net loss during the last three years.

Sales_Growth = Average sales growth during the last three years.

Auditor_Resign = One if the auditors resigned, and zero otherwise.

LN(MV) = Ln (Market Value), where market value is computed by stock price at the fiscal year end (Compustat #199)×the number of shares outstanding (Compustat #25).

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).

** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed

otherwise).

* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 4 presents classification result by reevaluating the sample (n=410) used in the ICW prediction model. 317 firms of 410 (77.32%) are correctly classified into each category.

The advantage of using IPO firms which went public within three years before the effective date of Section 404 of SOX as the sample for the ICW prediction model is that such young public companies have very similar firm characteristics to IPO firms which recently went public. I estimate the model for the first firm year when they are required to comply with the requirement of Section 404. Using the estimated coefficients from the logistic model, I then calculate the probability of the existence of internal control weaknesses:

$$\text{Prob(ICW)}_{it}=e^{x\beta} / (1+ e^{x\beta}) \quad (2)$$

Where β and x represent, respectively, the estimated coefficients from equation (1) and the data matrix of independent variables for the IPO sample.

To test the hypotheses in my dissertation, I use two control samples. Based on ICW probability from equation (2), IPO firms which did not disclose internal control weaknesses over pre-IPO financial reporting are divided into two sub-samples: 1) IPO firms which did not disclose internal control weaknesses but have higher likelihood of having such weaknesses ("High ICW" sample), and 2) IPO firms which did not disclose internal control weaknesses and have a lower likelihood of having such weaknesses ("Low ICW" firms). I First, I compute the median of ICW probability of IPO sample

firms (n=245) which did not disclose internal control weaknesses over pre-IPO financial reporting. IPO firms whose ICW probability is above the sample median are then classified as "High ICW" firms.

To sum up, the full sample is divided into three sub-samples.

1. IPO firms which voluntarily disclose internal control weaknesses over pre-IPO financial reporting ("VICW" firms).
2. IPO firms which did not disclose internal control weaknesses but have a higher ICW probability ("High ICW" firms).
3. IPO firms which did not disclose internal control weaknesses and have a lower ICW probability ("Low ICW" firms).

Table 3, Panel B provides descriptive statistics of Prob(ICW) between IPO firms which disclose ("VICW" firms) or do not disclose ("NO_VICW" firms) internal control weaknesses over pre-IPO financial reporting. VICW firms have a slightly higher mean value of Prob(ICW) (0.232 vs. 0.222).

Table 4. Discriminant analysis: classification error

Classification error by reusing prediction model sample (n=410)

	NO_ICW	ICW	Total
NO_ICW	***313*** ***(96.31%)***	12 (3.69%)	325 (100%)
ICW	81 (95.29%)	***4*** ***(4.71%)***	85 (100%)
Total	394 (96.10%)	16 (3.90%)	410 (100%)

5.2 Economic Determinants of Voluntary Disclosure of Internal Control Weaknesses

To investigate economic factors that affect IPO firms' decisions to voluntarily disclose internal control weaknesses, I use the following logistic regression model. As mentioned previously, ICW disclosure is determined by 1) the existence of ICW and 2) the incentives to report the ICW. As explained, I cannot assume that all firms that did not report ICWs did not have them. Therefore, to reduce the sample selection bias, I control for the probability of the existence of internal control weakness for the analysis of economic determinants of the voluntary disclosure of internal control problems.

I use the following logistic regression model.

$$\text{Prob(VICW =1)} = F(\alpha_0+\beta_1 LITRISK1_{it} +\beta_2 LITRISK2_{it}+\beta_3 RESTATE_{it}+\beta_4 UW_{it} +\beta_5 Big4_{it}+\beta_6 GC_{it}+\beta_7 NASDAQ_{it}+\beta_8 Prob(ICW)_{it} \quad (3)$$

where F (·) is the cumulative distribution function of the logistic distribution. The definition of variables is as follows:

Dependent variable:

VICW = One if the IPO firm discloses in its prospectus that it had or has internal control weaknesses over pre-IPO financial reporting and zero otherwise.

Proxies for incentives to discover and disclose internal control weakness:

LITRISK1 = Ln(Total Proceeds), where total proceeds is the actual

		offer share price × the number of shares offered.
LITRISK2	=	One if the firm's primary SIC code is in 2833-2836, 8731-8734 (biotechnology), 3570-3577 (computer hardware), 3600-3674 (communications equipment and electronics), 5200-5961, and 7370-7374 (computer software) and zero otherwise.
RESTATE	=	One if the IPO firm discloses that it has restated its financial statements and zero otherwise.
UW	=	Carter & Manaster (1990) reputation ranking for IPO underwriters during 2001-2004, ranging from 0.0 to 9.1.
Big4	=	One if audited by a Big 4 audit firm and zero otherwise.
GC	=	One if a going-concern opinion was issued on pre-IPO financial statements and zero otherwise.
NASDAQ	=	One if IPO firm's stock is listed on NASDAQ and zero otherwise.
Prob(ICW)	=	The probability that IPO firms have internal control weaknesses over pre-IPO financial reporting, calculated using the estimates from equation (1).

The dependent variable, VICW, is coded one if a firm reported one or more internal control weaknesses in its prospectus, and zero otherwise. To control for the existence of internal control weaknesses, the probability that an internal control weakness exists is included in the model.

The remaining set of variables proxy for the firm's ability to discover, and incentives to disclose the internal control weakness. I use two proxies for litigation risk related to IPO offerings; 1) LITRISK1 measured by IPO size and 2) LITRISK2 indicated by the industry in which the IPO firm operates its primary business.

Following Willenborg (1999), I use the size of IPO proceeds as a proxy for *ex ante* legal liability, because the Securities Act of 1933 established IPO proceeds as an upper limit on shareholder loss (Willenborg 1999). The IPO proceeds variable is expected to be positively associated with voluntary disclosure of internal control weaknesses.

My second litigation risk proxy is based on the incidence of shareholders' lawsuits. Following Francis *et al*. (1994), I use membership in the following industries to proxy for high litigation exposure: SIC 2833-2836, 8731-8734 (biotechnology), 3570-3577 (computer hardware), 3600-3674 (communications equipment and electronics), 5200-5961, and 7370-7374 (computer software).

Palmrose and Scholz (2004) report that the restatement of prior financial statements results in severe economic consequences for the restating firm, and its announcement provokes a negative market reaction. Also, as indicated in Auditing Standard No. 2 (PCAOB 2004), the fact that the firm restated previously reported financial statements is a strong indicator of material weaknesses in internal control over financial reporting. Ashbaugh-Skaife *et al.* (2007a) show a strong positive association between restatements and material weakness in internal control of firms reported under Section 302 of SOX. Therefore, restating IPO firms are motivated to alleviate an expected negative market perception of financial reporting quality by signaling that they have enhanced financial reporting quality by identifying and remediating internal control weaknesses.

The voluntary disclosure of internal control weaknesses could also be influenced by the firms' auditors and underwriters. Considering that the IPO firm will soon be exposed to a litigious financial reporting environment as a public company, both the underwriters and auditors are likely to be concerned about litigation risk. Therefore, to avoid litigation and to protect their reputations, they have a greater incentive to persuade IPO firms to disclose material information to potential investors. I expect a positive

association between the voluntary disclosure of weaknesses in internal control and the qualities of underwriters and Big 4 auditors.

Also, different internal and external financial reporting environments related to IPOs can affect IPO firms' decision to voluntarily disclose internal control weaknesses. Therefore, I control for auditors' opinions, and stock exchanges.

5.3 Underpricing and Voluntary Disclosure of Internal Control Weaknesses

To test the hypotheses related to underpricing and internal control weakness, I focus on the full sample, controlling for the probability of the existence of internal control weakness as I did in the previous analysis of economic determinants of voluntary disclosure of internal control weaknesses.

I use the following OLS (Ordinary Least Squares) regression model.

$$\begin{aligned} LN(Underpricing) = {} & \alpha_0 + \beta_1 VICW_{it} + \beta_2 RESTATE*HProb(ICW)_{it} \\ & + \beta_3 RESTATE*LProb(ICW)_{it} + \beta_4 Prob(ICW)_{it} + \beta_5 LN(MV)_{it} \\ & + \beta_6 LN(Age)_{it} + \beta_7 HighTech_{it} + \beta_8 NASDAQ_{it} + \beta_9 UW_{it} + \beta_{10} Big4_{it} \\ & + \beta_{11} RiskFactors_{it} + \beta_{12} GC_{it} + \beta_{13} Insider\ Selling_{it} + \beta_{14} Retained_{it} \\ & + \beta_{15} PR_{it} + \beta_{16} VarMR_{it} + \beta_{17} MR_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

Where:

Dependent variables :

LN(Close_Underpricing)	=	Ln(1+first-day initial return), where first-day initial return is calculated by [((first-day closing price-initial offering price)/initial offering price)-market return].
LN(Open_Underpricing)	=	Ln(1+first-day initial return), where first-day initial return is calculated by [((first-day opening price-initial offering price)/initial offering price)].
LN(Close_Money)	=	Ln(Money on the table), where money on the table is calculated by [((first-day closing price-initial offering price)* the number of shares offered)/Market Value].
LN(Open_Money)	=	Ln(Money on the table), where money on the table is

		calculated by [((first-day opening price-initial offering price)* the number of shares offered)/Market Value].
Test variables :		
VICW	=	One if the IPO firm discloses in its prospectus that it had or has internal control weakness over pre-IPO financial reporting and zero otherwise.
RESTATE	=	One if the IPO firm discloses that it has restated its financial statements and zero otherwise.
Specificity	=	The number of internal control weaknesses disclosed in the IPO prospectus.
Control variables :		
HProb(ICW)	=	One for IPO firms which did not disclose internal control weaknesses but have high ICW probability ("High ICW" firms) and zero otherwise.
LProb(ICW)	=	One for IPO firms which did not disclose internal control weaknesses but have low ICW probability ("Low ICW" firms) and zero otherwise.
Prob(ICW)	=	The probability that IPO firms have internal control weaknesses over pre-IPO financial reporting, calculated using the estimates from equation (1).
LN(MV)	=	Ln (Market Value), where market value is first-day closing price × the number of shares outstanding immediately after IPO offering).
LN(Age)	=	Ln (1+the number of years from the firm's founding date or date of incorporation, if founding date is not available, to its IPO date).
HighTech	=	One if the firm's SIC codes are in 3571-2, 3575, and 3577-8 (computer hardware), 3661, 3663, 3669 (communications equipment), 3674 (electronics), 3812 (navigation equipment), 3823, 3825-7, and 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), and 7371-5, and 7378-9 (software) and zero otherwise.
NASDAQ	=	One if IPO firm's stock is listed on NASDAQ and zero otherwise.
UW	=	Carter & Manaster (1990) reputation ranking for IPO underwriters during 2001-2004, ranging from 0.0 to 9.1.

Big4	=	One if audited by a Big 4 audit firm and zero otherwise.
RiskFactors	=	Number of risk factors listed in the IPO prospectus.
GC	=	One if a going-concern opinion was issued on pre-IPO financial statements and zero otherwise.
Insider selling	=	Shares offered by selling shareholders ÷ total shares offered in the IPO.
Retained	=	Proportion of voting common stock retained by pre-IPO shareholders.
PR	=	Price revision: actual IPO offer price per share ÷ mid-point of preliminary offer share price range as filed with the SEC scaled by the mid-point.
VarMR	=	Variance of lagged 15-day market return on the exchange where each IPO firm's share is listed.
MR	=	Lagged 15-day market return on the exchange where each IPO firm's share is listed.

Underpricing can be measured by two ways: 1) return, and 2) amount. Also, first-day closing or opening prices can be used to calculate underpricing. Therefore, in my dissertation I use four different dependent variables: 1) LN(Close_Underpricing), 2) LN(Open_Underpricing), 3) LN(Close_Money), and 4) LN(Open_Money).

To test the underpricing hypotheses, I use three test variables: 1) VICW, 2) RESTATE, and 3) Specificity. As before, VICW and RESTATE are dummy variables representing weak internal controls and restatements over pre-IPO financial statements, respectively. Specifically, to test the restatement hypothesis, VICW is factored into two variables: 1)VICW_only, and 2) RESTATE*VICW. The reason is that because there are 44 restating firms of 102 VICW firms, I need to isolate the effect of restatements on underpricing by dividing VICW firms into IPO firms which only disclose internal control weaknesses ("VICW_Only") and IPO firms which restate previously reported financial statements and then disclose internal control weaknesses ("RESTATE*VICW").

Additionally, 22 IPO firms (RESTATE_Only) of 245 NO_VICW firms which only RESTATE previous financial statements are controlled by two interaction terms: 1) RESTATE*HProb(ICW), and 2) Restate*LProb(ICW).

Specificity is a continuous variable measured by the number of internal control weaknesses that are voluntarily disclosed in the prospectus. According to the asymmetric information theory, the disclosure of more specific information about internal control weaknesses can reduce *ex ante* uncertainty about the IPO firms' future value. Therefore, in the OLS regression model above, I expect a negative association between Underpricing and Specificity. I discuss the control variables below.

Previous studies have shown that larger firms are more underpriced than smaller firms (Ibbotson *et al*. 1988; Tinic 1988; Schultz 1993). Because larger firms have "deep pockets," larger firms lower the offer price to reduce future litigation (Lowry and Shu 2002).

Lowry and Shu (2002) show that greater underpricing reduces expected litigation. Also, because large firms' IPOs are likely to involve voluminous transactions, they may lower the offering price to ensure that the IPO offering is fully subscribed, which results in underpricing (Michaely and Shaw 1994).

Rock (1986)'s theory suggests that firms with more *ex ante* uncertainty are likely to be more underpriced. Therefore, younger firms, firms in high-tech industries, and firms that seek listing on NASDAQ are likely to be more underpriced. Numerous prior studies provide evidence of a negative association between IPO firms' age and underpricing and positive associations between high-tech industries and NASDAQ stock exchange and

underpricing (Beatty 1989; Ibbotson *et al*. 1988; Loughran and Ritter 2002; Lowry and Shu 2002). I use three variables, Age, HighTech, and NASDAQ to control for these factors.

Logue (1973) examines the economic factors affecting the behavior of underwriters and finds that initial performance of new unseasoned equity issues is negatively associated with the reputation of underwriters. Consistent with Ibbotson (1975) and Ritter (1984), Beatty and Ritter (1986) provide evidence that when the IPO initial return is positively correlated with *ex ante* uncertainty of IPO firms' value, a prestigious underwriter does not have a strong motivation to artificially manipulate the offering price, which affects the magnitude of underpricing. The reason is that the prestigious underwriter is not willing to lose its reputation, which has been built on their professional relationship with their clients (e.g., issuing firms and investors) over a long period. Empirical studies (e.g., Johnson and Miller 1988; Meggison and Weiss 1991; Carter and Manaster 1990) document an inverse relation between underwriter's reputation and underpricing. The relevant empirical studies use different measurements of underwriter reputation. Johnson and Miller (1988) use "four underwriter-brackets," the most prestigious corresponding to "the bulge bracket bankers". They find that the more prestigious underwriter group(s) has lower initial returns. Meggison and Weiss (1991) use an underwriter's market share of all IPO proceeds as a proxy for the underwriter's reputation. In their study, initial returns are negatively and significantly correlated with underwriters' market shares, implying that IPO firms with more prestigious underwriters have less underpriced equities. Based on "tombstone announcements", Carter and

Manaster (1990) measure underwriter reputation, scaled from zero to nine, where nine represents a more prestigious underwriter. They find that initial returns of IPO firms with more prestigious underwriters are less dispersed, implying less underpricing.

IPO firms are likely to evaluate the costs and benefits of hiring a reputed auditor. Prior empirical studies report a positive association between auditor reputation and audit fees (Beatty 1989, 1993; Mayhew and Wilkins 2003). Issuing firms can benefit from hiring a reputed auditor such as a Big 4 auditor. Based on the pre-IPO financial statements audited by Big 4 auditors, the issuing firm can set a higher offering price, increasing IPO total proceeds and reducing underpricing (Draho 2004). A number of studies document a negative association between auditor reputation and underpricing (Balvers *et al*. 1988; Beatty 1989; Beatty and Welch 1996). Therefore, I include a dummy variable coded 1 if the auditor is a Big 4 firm and 0 otherwise.

The IPO prospectus lists risk factors that might influence investors' investment decisions. There are two kinds of risk factors: 1) general risk related to the IPO and 2) the firm-specific IPO risk. Firms with greater uncertainty for future performance are more likely to list all potential firm-specific risk, signaling the uncertainty to investors and reducing future legal exposure. The underwriter and auditor could force the issuing firm to disclose all possible risk factors to reduce their litigation risk. IPO firms which list more risk factors in their prospectus are assumed to be riskier (Simunic and Stein 1987). Investors also require a higher expected return for riskier firms. Therefore, riskier issuing firm lowers the offering price (Klein 1996; Bartov *et al.* 2002), leaving more money on the table for investors. In other words, the number of risk factors listed in the prospectus

is positively correlated to underpricing.

Willenborg and McKeown (2000) find that firms with going-concern audit opinions issued for pre-IPO financial statements experience lower initial returns, suggesting that going-concern audit opinions reduce the *ex ante* uncertainty of firms' future value. Therefore, I include an indicator variable coded 1 if the auditors issued a going-concern opinion on the pre-IPO financial statements and 0 otherwise.

The IPO total proceeds are composed of two parts: proceeds from issuing new shares, and proceeds to pre-IPO shareholders who sell their shares. According to signaling theory, because of the information asymmetry between insiders (management and pre-IPO shareholders) and outsiders (new investors), the new investor will request a discount on the offering price to compensate for the risk of purchasing overvalued shares. Leland and Pyle (1977) show that this 'lemon' problem can be avoided by pre-IPO shareholders retaining a large portion of their shares. Therefore, I expect positive and negative associations between insider selling and ownership retention and underpricing, respectively.

Hanley (1993) reports that during the period prior to the IPO date, revisions in the expected offering prices reflect the change of information about the IPO firm's value. Price revision is positively related to underpricing and more positive price revision is related to extremely positive underpricing (Hanley 1993).[20]

[20] More positive price revision is defined as the case where the actual offering price exceeds the upper limit of a range of expected offering price. Accordingly, more negative price revision is defined as the case where the actual offering price is below the lower limit of a range of expected offering price.

Loughran and Ritter (2002) find that the prior market return is positively related to underpricing. I control for market return in the 15 days prior to the IPO date and its volatility.[21]

5.4 The Effect of Remediation Status on Underpricing

Next, I specify another OLS regression model to test the association between the status of remediation procedures of internal control weaknesses and underpricing. The following OLS model is estimated for the combined sample of VICW and High ICW sub-samples.

$$\begin{aligned} LN(Underpricing) = {} & \alpha_0 + \beta_1 Remediation_{it} + \beta_2 RESTATE*HProb(ICW)_{it} \\ & + \beta_3 RESTATE*LProb(ICW)_{it} + \beta_4 Prob(ICW)_{it} + \beta_5 LN(MV)_{it} \\ & + \beta_6 LN(Age)_{it} + \beta_7 HighTech_{it} + \beta_8 NASDAQ_{it} + \beta_9 UW_{it} \\ & + \beta_{10} Big4_{it} + \beta_{11} RiskFactors_{it} + \beta_{12} GC_{it} + \beta_{13} Insider\ Selling_{it} \\ & + \beta_{14} Retained_{it} + \beta_{15} PR_{it} + \beta_{16} VarMR_{it} + \beta_{17} MR_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

Where:

Remediation = 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness on the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

Other variables were defined earlier. Because the progress of remediation procedures enhances financial reporting quality and therefore reduces the *ex ante* uncertainty about firms' future value, I expect a negative association between Underpricing and Remediation.

[21] Lowry and Shu (2002) use a compounded market return prior to the IPO date.

CHAPTER 6

EMPIRICAL RESULTS OF THE ECONOMIC DETERMINANTS OF INTERNAL CONTROL WEAKNESSES OVER PRE-IPO FINANCIAL REPORTING

6.1 Univariate Analysis

As shown in Ashbaugh-Skaife *et al.* (2007a), two factors (the probability of existence of internal control weaknesses and the probability that the firm has the incentives to detect and disclose discloses the internal control weakness) are related to the economic determinants of disclosure of internal control weaknesses. In my dissertation, I focus on the incentives for IPO firms to voluntarily disclose internal control weaknesses over pre-IPO financial reporting, controlling for the probability of the existence of internal control weaknesses.

Table 5 provides descriptive statistics on regression variables for the sample firms. Among the variables used to proxy for the incentives to discover and disclose the identified internal control weakness, LITRISK1 and RESTATE are significantly different between the test and control samples. LITRISK1 variable is positive and significant, suggesting that IPO firms with higher potential litigation risk are more likely to voluntarily disclose internal control weaknesses. The RESTATE variable is positive and significant, indicating that as expected, the existence of restatement over prior financial statements is a strong indicator of material weakness. The UW and Big 4 variables are not significant suggesting that the prestigious underwriters and Big 4 auditors (in my sample) do not play a critical role in detecting material weaknesses in internal control and forcing IPO firms to disclose it to the public.

Table 6 presents the result of correlation analysis. All correlations are below 0.55. The correlation between VICW and RESTATE variables is 0.397 (P-value <.0001).

Table 5. Univariate analysis

Variable	Mean		t-statistics	Z-statistics
	VICW	NO_VICW		
Proxies for incentives to discover and disclose:				
LITRISK1	4.913	4.641	2.47**	2.31**
LITRISK2	0.363	0.437	-1.27	-1.27
RESTATE	0.431	0.090	6.50***	7.38***
UW	8.316	8.161	0.95	0.35
Big 4	0.765	0.755	0.19	0.19
GC	0.059	0.025	1.35	1.59
NASDAQ	0.667	0.710	-0.80	-0.80
Prob(ICW)	0.232	0.222	0.79	0.37
N	102	245		

Where:

LITRISK1 = Ln (Total Proceeds), where total proceeds is the actual offer share price × the number of shares offered.

LITRISK2 = One if the firm's primary SIC code is in 2833-2836, 8731-8734 (biotechnology), 3570-3577 (computer hardware), 3600-3674 (communications equipment and electronics), 5200-5961, and 7370-7374 (computer software) and zero otherwise.

RESTATE = One if the IPO firm discloses that it has restated its financial statements and zero otherwise.

UW = Carter & Manaster (1990) reputation ranking for IPO underwriters during 2001-2004, ranging from 0.0 to 9.1.

Big4 = One if audited by a Big 4 audit firm and zero otherwise.

GC = One if a going-concern opinion was issued on pre-IPO financial statements and zero otherwise.

NASDAQ = One if IPO firm's stock is listed on NASDAQ and zero otherwise.

Prob(ICW) = The probability that IPO firms have internal control weaknesses over pre-IPO financial reporting, calculated using the estimates from equation (1).

*** Significantly different from zero (two-tailed) at or below the 0.01 level.

** Significantly different from zero (two-tailed) at or below the 0.05 level.

* Significantly different from zero (two-tailed) at or below the 0.1 level.

Table 6. Pearson correlations

Variable	LITRISK1	LITRISK2	RESTATE	UW	Big 4	GC	NASDAQ	Prob(ICW)	HProb(ICW)	LProb(ICW)
VICW	0.132 (0.01)	-0.068 (0.20)	0.397 (<.0001)	0.047 (0.39)	0.010 (0.85)	0.086 (0.11)	-0.043 (0.42)	0.054 (0.31)	-0.478 (<.0001)	-0.475 (<.0001)
LITRISK1		-0.314 (<.0001)	0.059 (0.27)	0.509 (<.0001)	0.098 (0.07)	-0.236 (<.0001)	-0.496 (<.0001)	-0.392 (<.0001)	-0.517 (<.0001)	0.392 (<.0001)
LITRISK2			-0.065 (0.22)	-0.005 (0.92)	0.107 (0.05)	0.097 (0.07)	0.275 (<.0001)	0.104 (0.05)	0.207 (<.0001)	-0.142 (0.01)
RESTATE				-0.034 (0.52)	-0.000 (0.99)	0.029 (0.59)	-0.032 (0.55)	0.100 (0.06)	-0.236 (<.0001)	-0.142 (0.01)
UW					0.367 (<.0001)	-0.244 (<.0001)	-0.116 (0.03)	-0.256 (<.0001)	-0.269 (<.0001)	0.225 (<.0001)
Big 4						0.033 (0.54)	0.009 (0.87)	-0.009 (0.87)	-0.059 (0.27)	0.050 (0.36)
GC							0.056 (0.30)	0.150 (0.01)	0.058 (0.28)	-0.139 (0.01)
NASDAQ								0.215 (<.0001)	0.344 (<.0001)	-0.303 (<.0001)
Prob(ICW)									0.319 (<.0001)	-0.371 (<.0001)
HProb(ICW)										-0.546 (<.0001)

*** Significantly different from zero (two-tailed) at or below the 0.01 level.
** Significantly different from zero (two-tailed) at or below the 0.05 level.
* Significantly different from zero (two-tailed) at or below the 0.1 level.

6.2 Multivariate Analysis

Table 7, Panels A, B, and C show two sets of logistic regression results. In the first regression model, VICW is regressed on the variables related to the incentives of disclosing identified internal control weaknesses without controlling for the probability of the existence of internal control weakness. In the second regression model, the probability of the existence of internal control weakness is included.

To test the litigation risk hypothesis (hypothesis H1), the regression model has two proxies. Table 7, Panel A shows that the first proxy, LITRISK1, is positive and statistically significant at the 5 percent level, indicating that IPO firms with higher *ex ante* litigation risk are more likely to disclose any internal control weaknesses (if they exist) in order to reduce future potential litigation risk. However, the second proxy for litigation risk, LITRISK2, is not statistically significant.

Consistent with Table 5, RESTATE is positive and statistically significant at the 1 percent level. This result implies, consistent with prior research, that IPO firms' restatements are strongly associated with weaknesses in internal control (e.g., Ashbaugh-Skaife *et al.* 2007a; Kinney and McDaniel 1989; DeFond and Jiambalvo 1991).

For further analysis, the full sample is divided into two sub groups, based on the sample median of Prob(ICW): 1) High Prob(ICW), and 2) Low Prob(ICW) firms. Table 7, Panels B and C provide the regression results for each sub group. In both sub groups, RESTATE variable is positive and significant at the 1 percent level, indicating that restatement provides a strong incentive to report internal control weaknesses regardless of the probability of the existence of internal control weaknesses. Unexpectedly,

LITRISK 1 variable is not significant for the High Prob(ICW) group, but significant at the 5 percent level at Low Prob(ICW) group. Additionally, UW and Big 4 variables are not significant.

In Table 7, Panel D, I use interaction terms between test variables and Prob(ICW). The results are similar to those in Table 7, Panels B and C. Particularly, RESTATE*HProb(ICW), interaction term between High Prob(ICW) and RESTATE variables is marginally significant, suggesting that restating IPO firms with higher Prob(ICW) are more likely to disclose identified internal control weaknesses. Table 7, Panel E reports logistic regression results including foreign IPO firms issuing ADRs and financial institutions. As expected, RESTATE variable is positive and significant but LITRISK1 variable is positive and marginally significant. ADR variable is positive and significant at the 1 percent level. My interpretation is that foreign firms whose shares are listed on a foreign stock exchange with different financial reporting regime are more concerned about potential risk (e.g., litigation risk) related to IPOs. To sum up, the regression results provide evidence consistent with Hypothesis 2 ('Restatement'). Hypothesis 1 ('Litigation risk') is partially supported. However, Hypotheses 3 ('Auditors' reputation') and 4 ('Underwriters' reputation') are not supported.

Table 7. Logistic regression results of economic determinants of voluntary disclosure of ICW

Panel A: Full sample

Variable	Exp. sign	Model 1[a]		Model 2[b]	
		Coefficient	t-statistics	Coefficient	t-statistics
Intercept	?	-3.982***	-3.35	-4.991***	-3.29
LITRISK1	+	0.394**	1.97	0.480**	2.17
LITRISK2	+	-0.112	-0.39	-0.106	-0.36
RESTATE	+	2.046***	6.67	2.017***	6.55
UW	+	0.074	0.61	0.080	0.66
Big 4	+	-0.082	-0.25	-0.101	-0.31
GC	+	1.550**	2.27	1.490**	2.16
NASDAQ	?	0.260	0.76	0.241	0.71
Prob(ICW)	?			2.621	1.12
Likelihood Ratio		60.45***		61.92***	
Max. R-square		22.77%		23.27%	
Highest VIF		2.01		2.15	
N (Full Sample)		347		347	
N (VICW Sample)		102		102	
N (NO_VICW Sample)		245		245	

Panel B: High Prob(ICW) firms

Variable	Exp. sign	Model 1[a]		Model 2[b]	
		Coefficient	t-statistics	Coefficient	t-statistics
Intercept	?	-3.359**	-2.15	-3.863**	-2.10
LITRISK1	+	0.318	0.85	0.331	0.86
LITRISK2	+	-0.424	-0.99	-0.421	-0.99
RESTATE	+	2.666***	5.55	2.641***	5.48
UW	+	0.064	0.40	0.068	0.42
Big 4	+	0.196	0.35	0.185	0.33
GC	+	1.476**	1.98	1.447**	1.93
NASDAQ	?	-0.122	-0.18	-0.100	-0.15
Prob(ICW)	?			1.561	0.57
Likelihood Ratio		48.31***		48.67***	
Max. R-square		34.86%		35.08%	
Highest VIF		2.01		2.15	
N (Full Sample)		174		174	
N (VICW Sample)		49		49	
N (NO_VICW Sample)		125		125	

Table 7. (continued)

Panel C: Low Prob(ICW) firms

Variable	Exp. sign	Model 1[a]		Model 2[b]	
		Coefficient	t-statistics	Coefficient	t-statistics
Intercept	?	-5.616**	-2.33	-8.622**	-2.18
LITRISK1	+	0.588**	2.02	0.804**	2.19
LITRISK2	+	0.193	0.47	0.229	0.55
RESTATE	+	1.510***	3.60	1.506***	3.57
UW	+	0.136	0.59	0.146	0.63
Big 4	+	-0.226	-0.54	-0.219	-0.52
NASDAQ	?	0.494	1.13	0.488	1.11
Prob(ICW)	?			9.565	0.97
Likelihood Ratio		18.83***		19.78***	
Max. R-square		14.56%		15.25%	
Highest VIF		2.01		2.15	
N (Full Sample)		173		173	
N (VICW Sample)		53		53	
N (NO_VICW Sample)		120		120	

Panel D: Full sample using interaction terms

Variable	Exp. sign	Model 1[a]	
		Coefficient	t-statistics
Intercept	?	-4.858***	-2.91
LITRISK1	+	0.524**	1.98
HProb(ICW)*LITRISK1	+	-0.071	-0.18
LITRISK2	+	0.208	0.51
HProb(ICW)*LITRISK1	+	-0.631	-1.09
RESTATE	+	1.470***	3.58
RESTATE*HProb(ICW)	+	1.203**	1.90
UW	+	0.057	0.31
HProb(ICW)*UW	+	0.007	0.03
Big 4	+	-0.251	-0.61
HProb(ICW)*Big 4	+	0.416	0.60
GC	+	1.501**	2.05
NASDAQ	?	0.264	0.75
Prob(ICW)	+	2.303	0.84
Likelihood Ratio		67.28	
Max. R-square		25.10%	
Highest VIF		49.32	
N (Full Sample)		347	
N (VICW Sample)		102	
N (NO_VICW Sample)		245	

Table 7. (continued)

Panel E: Full sample including ADRs and financial institutions

Variable	Exp. sign	Model 1[a]		Model 2[b]	
		Coefficient	t-statistics	Coefficient	t-statistics
Intercept	?	-3.008***	-2.99	-3.389***	-2.84
LITRISK1	+	0.223*	1.29	0.251*	1.39
LITRISK2	+	0.038	0.14	0.037	0.14
RESTATE	+	2.017***	6.95	1.997***	6.85
UW	+	0.061	0.59	0.067	0.65
Big 4	+	0.002	0.01	-0.009	-0.03
GC	+	1.306**	1.96	1.286**	1.92
NASDAQ	?	0.036	0.12	0.025	0.09
ADR	?	2.093***	4.42	2.107***	4.44
FININD	?	-0.573	-1.35	-0.567	-1.33
Prob(ICW)	?			1.002	0.60
Likelihood Ratio		84.72***		85.11***	
Max. R-square		25.19%		25.30%	
Highest VIF		1.90		2.04	
N (Full Sample)		431		431	
N (VICW Sample)		132		132	
N (NO_VICW Sample)		299		299	

See Table 5 for the definition of groups and variables.

[a] Dependent variable is VICW. VICW is coded 1 if the IPO firm discloses internal control weaknesses in internal control over financial reporting in the prospectus, and 0 otherwise. Model 1 does *not* include a control for the probability of VICW.

[b] Dependent variable is VICW. VICW is coded 1 if the IPO firm discloses internal control weaknesses over financial reporting in the prospectus, and 0 otherwise. Model 2 includes a control for the probability of VICW.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

CHAPTER 7

EMPIRICAL RESULTS OF THE ASSOCIATION BETWEEN UNDERPRICING AND INTERNAL CONTROL WEAKNESSES OVER PRE-IPO FINANCIAL REPORTING

7.1 Univariate Analysis

Table 8 reports univariate statistics on the regression variables for the full sample (n=347) for the underpricing hypotheses. As previously shown in Table 5, large IPO firms, represented by market capitalization (LN(MV)), are more likely to disclose weaknesses in internal control over pre-IPO financial reporting. In addition, High Tech firms are more likely to be associated with the disclosure of internal control weaknesses. IPO firms with insiders selling a greater portion of their ownership (Insider Selling) have a propensity for disclosing internal control weakness over pre-IPO financial reporting (Only for Z-statistics).

The correlation matrix in Table 9 shows that total IPO proceed (Total Proceed) is strongly and positively correlated with market capitalization [LN(MV), 0.699] of IPO firms. VICW is positively and significantly correlated with Specificity (0.734) and Remediation (0.972), possibly because only IPO firms with VICW=1 have positive values of Specificity and Remediation. In addition, Specificity and Remediation are highly positively correlated each other (0.705).

Table 8. Univariate analysis

Variable	Mean		t-statistics	Z-statistics
	VICW[a]	NO_VICW[a]		
LN(Close_Underpricing)	0.108	0.111	-0.15	-0.22
Initial return	0.130	0.132	-0.10	-0.25
LN(Close_Money)	0.022	0.025	-0.79	-0.48
LN(MV)	6.293	6.028	2.24**	1.78*
LN(Age)	2.041	2.043	-0.02	-0.61
HighTech	0.422	0.327	1.69*	1.68*
NASDAQ	0.667	0.710	-0.80	-0.80
UW	8.316	8.161	0.95	0.35
Big4	0.765	0.755	0.19	0.19
RiskFactors	37.196	37.233	-0.04	-0.39
GC	0.059	0.025	1.35	1.59
Insider Selling	0.174	0.127	1.35	1.71*
Retained	0.700	0.695	0.29	0.50
PR	-0.007	-0.013	0.32	0.06
VarMR	0.000	0.000	0.03	0.61
MR	0.006	0.006	0.07	0.02
N	102	245		

[a] VICW is coded one if the IPO firm discloses in its prospectus that it had or has internal control weaknesses over pre-IPO financial reporting and zero for firms (i.e., NO_VICW) that do not make such a disclosure.

Where:

LN(Close_Underpricing)	=	Ln(1+first-day initial return), where first-day initial return is calculated by [((first-day closing price-initial offering price)/initial offering price)-market return].
Initial return	=	First-day initial return.
LN(Close_Money)	=	Ln(Money on the table), where money on the table is calculated by [((first-day closing price-initial offering price)* the number of shares offered)/Market Value].
LN(MV)	=	Ln (Market Value), where market value is offer share price × the number of shares outstanding immediately after the IPO offering).
LN(Age)	=	Ln (1+the number of years from the firm's founding date or date of incorporation, if founding date is not available, to its IPO date).

HighTech	=	One if the firm's SIC codes are in 3571-2, 3575, and 3577-8 (computer hardware), 3661, 3663, 3669 (communications equipment), 3674 (electronics), 3812 (navigation equipment), 3823, 3825-7, and 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), and 7371-5, and 7378-9 (software) and zero otherwise.
NASDAQ	=	One if IPO firm's stock is listed on NASDAQ and zero otherwise.
UW	=	Carter & Manaster (1990) reputation ranking for IPO underwriters during 2001-2004, ranging from 0.0 to 9.1.
Big4	=	One if audited by a Big 4 audit firm and zero otherwise.
RiskFactors	=	Number of risk factors listed in the IPO prospectus.
GC	=	One if a going-concern opinion was issued on pre-IPO financial statements and zero otherwise.
Insider Selling	=	Shares offered by selling shareholders ÷ total shares offered in the IPO.
Retained	=	Percentage of voting common stock retained by pre-IPO shareholders.
PR	=	Price revision: actual IPO offer price per share ÷ mid-point of preliminary offer share price range as filed with the SEC scaled by the mid-point.
VarMR	=	Variance of lagged 15-day market return on the exchange where each IPO firm's share is listed.
MR	=	Lagged 15-day market return on the exchange where each IPO firm's share is listed.

*** Significantly different from zero (two-tailed) at or below the 0.01 level.
** Significantly different from zero (two-tailed) at or below the 0.05 level.
* Significantly different from zero (two-tailed) at or below the 0.1 level.

Table 9. Pearson correlations

Variable	LN(CM)	VICW	RESTATE	Specificity	Remediation	Total Proceed	LN(MV)	LN(Age)	HighTech
Underpricing	0.877 (<.0001)	-0.008 (0.88)	-0.012 (0.83)	-0.015 (0.78)	-0.014 (0.80)	0.022 (0.68)	0.344 (<.0001)	-0.002 (0.97)	0.034 (0.52)
LN(CM)		-0.043 (0.43)	-0.025 (0.65)	-0.027 (0.62)	-0.033 (0.54)	0.076 (0.16)	0.224 (<.0001)	-0.036 (0.50)	-0.061 (0.25)
VICW			0.397 (<.0001)	0.734 (<.0001)	0.972 (<,.0001)	0.130 (0.02)	0.120 (0.03)	-0.001 (0.99)	0.091 (0.09)
RESTATE				0.378 (<.0001)	0.369 (<.0001)	0.057 (0.29)	0.045 (0.40)	-0.020 (0.72)	0.009 (0.86)
Specificity					0.705 (<.0001)	0.051 (0.35)	0.069 (0.20)	-0.007 (0.90)	0.156 (0.00)
Remediation						0.122 (0.02)	0.104 (0.05)	-0.003 (0.96)	0.057 (0.29)
Total Proceed							0.699 (<.0001)	-0.129 (0.02)	-0.130 (0.02)
LN(MV)								-0.074 (0.17)	-0.023 (0.68)
LN(Age)									0.110 (0.04)

*** Significantly different from zero (two-tailed) at or below the 0.01 level.
** Significantly different from zero (two-tailed) at or below the 0.05 level.
* Significantly different from zero (two-tailed) at or below the 0.1 level.

Table 9. (continued)

Variable	NASDAQ	UW	Big 4	Risk Factors	GC	Insider Selling	Retained	PR
Underpricing	0.073 (0.17)	0.127 (0.02)	-0.033 (0.55)	0.042 (0.44)	-0.135 (0.01)	0.100 (0.06)	0.206 0.0001	0.543 (<.0001)
LN(CM)	0.063 (0.24)	0.064 (0.24)	-0.089 (0.10)	-0.065 (0.23)	-0.131 (0.01)	0.125 (0.02)	-0.026 (0.63)	0.492 (<.0001)
VICW	-0.043 (0.42)	0.047 (0.39)	0.010 (0.85)	-0.002 (0.97)	0.086 (0.11)	0.087 (0.11)	0.016 (0.77)	0.017 (0.75)
RESTATE	-0.032 (0.55)	-0.034 (0.52)	-0.000 (0.99)	-0.003 (0.95)	0.029 (0.59)	0.071 (0.28)	-0.029 (0.58)	0.015 (0.79)
Specificity	0.065 (0.23)	0.029 (0.60)	-0.000 (0.99)	0.008 (0.88)	-0.020 (0.71)	0.141 (0.01)	0.038 (0.49)	-0.026 (0.63)
Remediation	-0.042 (0.44)	0.042 (0.43)	0.016 (0.77)	-0.018 (0.74)	0.072 (0.08)	0.114 (0.03)	-0.002 (0.97)	0.024 (0.65)
Total Proceed	-0.498 (<.0001)	0.254 (<.0001)	0.023 (0.67)	-0.008 (0.88)	-0.110 (0.04)	0.025 (0.65)	-0.221 (<.0001)	0.139 (0.01)
LN(MV)	-0.408 (<.0001)	0.504 (<.0001)	0.095 (0.08)	0.074 (0.17)	-0.225 (<.0001)	0.136 (0.01)	0.222 (<.0001)	0.397 (<.0001)
LN(Age)	-0.028 (0.60)	0.048 (0.37)	0.097 (0.07)	-0.074 (0.17)	0.003 (0.95)	0.097 (0.07)	0.122 (0.02)	-0.084 (0.12)
HighTech	0.213 (<.0001)	0.064 (0.24)	0.039 (0.47)	0.181 (0.00)	0.025 (0.65)	-0.065 (0.23)	0.236 (<.0001)	0.009 (0.87)
NASDAQ		-0.116 (0.03)	0.009 (0.87)	0.074 (0.00)	0.056 (0.30)	-0.065 (0.22)	0.157 (0.00)	-0.102 (0.06)
UW			0.367 (<.0001)	0.005 (0.93)	-0.244 (<.0001)	0.112 (0.04)	0.020 (0.71)	0.110 (0.04)
Big 4				-0.130 (0.02)	0.033 (0.54)	0.004 (0.94)	0.017 (0.77)	-0.003 (0.95)
RiskFactors					0.033 (0.53)	-0.043 (0.43)	0.180 (0.00)	-0.087 (0.11)
GC						-0.108 (0.04)	0.042 (0.43)	-0.167 (0.00)
Insider Selling							-0.040 (0.46)	0.108 (0.04)
Retained								0.065 (0.23)

*** Significantly different from zero (two-tailed) at or below the 0.01 level.
** Significantly different from zero (two-tailed) at or below the 0.05 level.
* Significantly different from zero (two-tailed) at or below the 0.1 level.

7.2 Multivariate Analysis

7.2.1 The Effect of ICWs and Restatements on Underpricing

In the multivariate analysis, I investigate the economic consequences of internal control weaknesses over pre-IPO by examining the association between underpricing and internal control weaknesses. Furthermore, prior studies (e.g., Ashbaugh-Skaife *et al*. 2007a; Kinney and McDaniel 1989; DeFond and Jiambalvo 1991) provide evidence that restatements of prior financial statements caused by accounting errors is a strong and positive indicator of the existence of a weaknesses in internal control over financial reporting system. Also, it has been recognized that accounting restatement is followed by negative market reactions and economic consequences (Palmrose *et al.* 2004; Palmrose and Scholz 2004). However, considering that IPO firms are explicitly allowed to restate previously reported financial statements before going public, accounting restatements by IPO firms might be perceived as a complying procedure for higher quality financial reporting demand. Therefore, expanding my primary research question, I also examine the association between underpricing and restatements of pre-IPO financial statements, which are limited to ones with subsequent identification and remediation of internal control weaknesses.

7.2.1.1 Full Sample

Tables 10 to 13 report the OLS regression results for the full sample (n=347), NASDAQ firms (n=242), and NYSE/AMEX firms (n=105). I use three different test variables: VICW, VICW_Only, and RESTATE*VICW. Also, I use four different dependent variables: LN(Close_Underpricing), LN(Open_Underpricing),

LN(Close_Money), and LN(Open_Money). I only find that VICW and RESTATE*VICW variables are negatively and significantly associated with underpricing at the 10 percent level for NYSE & AMEX sample in Table 13 when the dependent variable is LN(Open_Money). Other results indicate that VICW and RESTATE variables are not statistically significant on an individual or joint basis.

7.2.1.2 Sample excluding IPO Firms with Overpricing

Next, after excluding IPO firms with overpricing I only focus on IPO firms with underpricing or 'zero' underpricing. When I use first-day closing and opening prices to calculate underpricing, the sample size is reduced to 278 and 311 IPO firms, respectively. The OLS regression results are presented in Tables 14 through 17.

Table 14 reports the OLS regression results using LN(Close_Underpricing) as the dependent variable. The first and second columns in Table 14 show that for the full sample (n=278), VICW and VICW_Only variables are negative and significant at the 10 and 5 percent levels, respectively, indicating that voluntary disclosure of financial reporting quality lowers underpricing by reducing *ex ante* uncertainty about the new issue. Also, according to fourth column in Table 14, VICW_only variable is negative and marginally significant for NASDAQ IPO sample firms (n=192).

Table 15 reports the OLS regression results using LN(Open_Underpricing) as the dependent variable. The first column in Table 15 shows that for the full sample, VICW variable is negative and marginally significant. The sixth column in Table 15 reports that the interaction term of RESTATE*VICW is negative and marginally significant for NYSE/AMEX IPO sample firms (n=94).

Table 16 reports the OLS regression results using LN(Close_Money) as the dependent variable. The first and third columns in Table 16 show that for the full sample, both VICW and VICW_Only variables are negative and significant at the 5 percent level, indicating that IPO firms which voluntarily disclose financial reporting weaknesses and subsequent remediation procedures obtain more funds from new investors by reducing information asymmetry of the new issues between internal and external investors. The third and fourth columns in Table 16 report that both VICW and VICW_Only variables are negative and marginally significant for NASDAQ IPO sample firms.

Table 17 reports the OLS regression results using LN(Open_Money) as the dependent variable. The fifth and sixth columns in Table 17 report that VICW and VICW_Only variables are negative and significant at the 1 and 10 percent levels, respectively for NYSE/AMEX IPO sample firms. Additionally, interaction term of RESTATE*VICW is negative and significant at the 5 percent level, implying that accounting restatements and subsequent identification and remediation of internal control weaknesses lower underpricing by reducing *ex ante* uncertainty of IPO firms' shares.

Table 10. VICW/Restatement: OLS regression results of underpricing using closing price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.266*** (-3.45)	-0.263*** (-3.40)	-0.459*** (-4.36)	-0.458*** (-4.33)	0.011 (0.09)	0.013 (0.11)
VICW	?	-0.016 (-1.02)		-0.026 (-1.40)		0.008 (0.27)	
VICW_Only	?		-0.025 (-1.32)		-0.028 (-1.23)		0.004 (0.13)
RESTATE *VICW	?		-0.003 (-0.15)		-0.023 (-0.88)		0.012 (0.31)
RESTATE *HProb(ICW)	?	-0.078* (-1.68)	-0.078* (-1.68)	-0.097* (-1.85)	-0.098* (-1.85)	-0.041 (-0.42)	-0.041 (-0.42)
RESTATE *LProb(ICW)	?	-0.018 (-0.50)	-0.018 (-0.51)	0.002 (0.04)	0.002 (0.04)	-0.037 (-0.62)	-0.037 (-0.62)
Prob(ICW)	+	0.072 (0.76)	0.060 (0.63)	0.179* (1.45)	0.177* (1.42)	-0.130 (-0.86)	-0.135 (-0.87)
LN(MV)	+	0.037*** (3.44)	0.037*** (3.39)	0.081*** (4.74)	0.081*** (4.72)	0.008 (0.50)	0.008 (0.48)
LN(Age)	-	0.008 (0.99)	0.008 (0.97)	0.025 (2.13)	0.025 (2.11)	-0.005 (-0.46)	-0.005 (-0.44)
HighTech	+	-0.016 (-1.00)	-0.016 (-1.03)	-0.033 (-1.90)	-0.033 (-1.89)	0.042 (1.21)	0.042 (1.17)
NASDAQ	+	0.066*** (3.63)	0.066*** (3.63)				
UW	-	0.000 (0.01)	0.000 (0.03)	-0.000 (-0.01)	-0.000 (-0.01)	-0.011 (-0.91)	-0.011 (-0.90)
Big4	-	-0.025* (-1.35)	-0.024* (-1.37)	-0.022 (-1.02)	-0.022 (-1.03)	0.008 (0.23)	0.008 (0.23)
RiskFactors	+	0.000 (0.20)	0.000 (0.23)	-0.000 (-0.25)	-0.000 (-0.25)	0.001 (0.97)	0.001 (0.97)
GC	-	-0.005 (-0.14)	-0.004 (-0.09)	-0.009 (-0.21)	-0.008 (-0.19)	-0.011 (-0.10)	-0.015 (-0.13)
Insider Selling	+	0.020 (0.72)	0.020 (0.69)	0.020 (0.41)	0.019 (0.38)	-0.001 (-0.02)	-0.000 (-0.00)
Retained	-	0.098 (1.63)	0.100 (1.65)	0.059 (0.61)	0.059 (0.61)	0.124 (1.43)	0.123 (1.42)
PR	+	0.529*** (9.53)	0.533*** (9.56)	0.420*** (6.22)	0.421*** (6.20)	0.569*** (4.84)	0.571*** (4.81)
VarMR	?	313.737** (2.25)	312.856** (2.24)	272.875* (1.70)	272.429* (1.69)	133.961 (0.46)	135.546 (0.46)
MR	+	0.743*** (2.68)	0.744*** (2.68)	0.815*** (2.63)	0.815*** (2.63)	0.110 (0.17)	0.109 (0.17)
F-Value		12.64***	11.97***	12.33***	11.56***	3.04***	2.83***
Adj. R-square		36.39%	36.34%	42.93%	42.68%	23.88%	23.03%
Highest VIF		2.56	2.57	2.72	2.72	2.39	2.41
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Close_Underpricing). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 11. VICW/Restatement: OLS regression results of underpricing using opening price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
Variable	Exp. sign	Coefficient (t-statistics) (1)	Coefficient (t-statistics) (2)	Coefficient (t-statistics) (3)	Coefficient (t-statistics) (4)	Coefficient (t-statistics) (5)	Coefficient (t-statistics) (6)
Intercept		-0.212*** (-3.30)	-0.211*** (-3.28)	-0.394*** (-4.55)	-0.393*** (-4.51)	0.022 (0.22)	0.017 (0.16)
VICW	?	-0.014 (-1.11)		-0.009 (-0.60)		-0.028 (-1.14)	
VICW_Only	?		-0.016 (-1.01)		-0.012 (-0.63)		-0.016 (-0.55)
RESTATE *VICW	?		-0.012 (-0.68)		-0.005 (-0.24)		-0.047 (-1.34)
RESTATE *HProb(ICW)	?	-0.040 (-1.03)	-0.040 (-1.03)	-0.053 (-1.21)	-0.053 (-1.22)	-0.011 (-0.13)	-0.009 (-0.11)
RESTATE *LProb(ICW)	?	-0.050* (-1.71)	-0.051* (-1.71)	-0.056 (-1.51)	-0.056 (-1.51)	-0.037 (-0.72)	-0.036 (-0.71)
Prob(ICW)	+	0.034 (0.43)	0.032 (0.40)	0.162* (1.59)	0.159* (1.55)	-0.144 (-0.10)	-0.126 (-0.95)
LN(MV)	+	0.028*** (3.08)	0.028*** (3.07)	0.061*** (4.33)	0.061*** (4.31)	0.012 (0.89)	0.013 (0.94)
LN(Age)	-	0.010 (1.44)	0.010 (1.43)	0.024 (2.52)	0.010 (2.50)	-0.003 (-0.31)	-0.004 (-0.37)
HighTech	+	-0.017 (-1.30)	-0.017 (-1.30)	-0.029 (-2.01)	-0.029 (-2.00)	0.016 (0.38)	0.015 (0.48)
NASDAQ	+	0.049*** (3.28)	0.049*** (3.27)				
UW	-	-0.001 (-0.21)	-0.001 (-0.20)	-0.001 (-0.13)	-0.001 (-0.12)	-0.013 (-1.24)	-0.013 (-1.24)
Big4	-	0.004 (0.30)	0.004 (0.29)	0.005 (0.27)	0.004 (0.25)	0.037 (1.31)	0.038 (1.32)
RiskFactors	+	0.000 (0.22)	0.000 (0.23)	0.000 (0.27)	0.000 (0.27)	0.001 (0.77)	0.001 (0.72)
GC	-	0.003 (0.10)	0.004 (0.11)	-0.006 (-0.17)	-0.005 (-0.13)	0.052 (0.57)	0.066 (0.71)
Insider Selling	+	0.014 (0.61)	0.014 (0.61)	-0.016 (-0.40)	-0.018 (-0.44)	0.025 (0.77)	0.022 (0.69)
Retained	-	0.108 (2.15)	0.108 (2.15)	0.080 (1.01)	0.080 (1.01)	0.101 (1.36)	0.102 (1.37)
PR	+	0.491*** (10.66)	0.491*** (10.63)	0.429*** (7.72)	0.430*** (7.70)	0.486*** (4.80)	0.479*** (4.71)
VarMR	?	135.790 (1.10)	135.637 (1.17)	119.006 (0.90)	118.435 (0.89)	-65.294 (-0.26)	-71.312 (-0.29)
MR	+	0.403** (1.75)	0.403** (1.75)	0.525** (2.06)	0.525** (2.06)	-0.335 (-0.61)	-0.334 (-0.61)
F-Value		13.57***	12.78***	13.47***	12.63***	2.74***	2.60***
Adj. R-square		38.18%	37.99%	45.29%	45.06%	21.11%	20.72%
Highest VIF		2.56	2.67	2.72	2.72	2.39	2.41
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Open_Underpricing). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 12. VICW/Restatement: OLS regression results of underpricing amount using closing price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.005 (0.28)	0.005 (0.29)	-0.014 (-0.59)	-0.014 (-0.59)	0.041 (1.49)	0.040 (1.44)
VICW	?	-0.005 (-1.44)		-0.005 (-1.29)		-0.005 (-0.79)	
VICW_Only	?		-0.006 (-1.39)		-0.005 (-0.99)		-0.004 (-0.44)
RESTATE *VICW	?		-0.004 (-0.79)		-0.006 (-0.98)		-0.008 (-0.85)
RESTATE *HProb(ICW)	?	-0.008 (-0.80)	-0.009 (-0.80)	-0.011 (-0.89)	-0.011 (-0.88)	-0.001 (-0.05)	-0.001 (-0.04)
RESTATE *LProb(ICW)	?	-0.007 (-0.83)	-0.007 (-0.84)	-0.002 (-0.20)	-0.002 (-0.19)	-0.016 (-1.15)	-0.016 (-1.13)
Prob(ICW)	+	0.016 (0.72)	0.014 (0.66)	0.034 (1.19)	0.034 (1.19)	-0.020 (-0.56)	-0.018 (-0.48)
LN(MV)	+	0.007*** (2.72)	0.007*** (2.70)	0.015*** (3.73)	0.015*** (3.72)	0.002 (0.50)	0.002 (0.53)
LN(Age)	-	0.001 (0.69)	0.001 (0.68)	0.004 (1.50)	0.004 (1.50)	-0.001 (-0.26)	-0.001 (-0.30)
HighTech	+	-0.006 (-1.55)	-0.006 (-1.56)	-0.007 (-1.86)	-0.007 (-1.86)	-0.002 (-0.29)	-0.002 (-0.24)
NASDAQ	+	0.016*** (3.86)	0.016*** (3.86)				
UW	-	-0.000 (-0.19)	-0.000 (-0.18)	-0.000 (-0.08)	-0.000 (-0.08)	-0.002 (-0.87)	-0.002 (-0.86)
Big4	-	-0.009** (-2.23)	-0.010** (-2.23)	-0.008* (-1.57)	-0.008* (-1.56)	-0.002 (-0.27)	-0.002 (-0.26)
RiskFactors	+	-0.000 (-1.26)	-0.000 (-1.25)	-0.000 (-1.29)	-0.000 (-1.29)	0.000 (0.18)	0.000 (0.16)
GC	-	-0.001 (-0.12)	-0.001 (-0.10)	-0.001 (-0.13)	-0.001 (-0.14)	0.013 (0.53)	0.015 (0.60)
Insider Selling	+	0.008 (1.25)	0.008 (1.24)	0.011 (1.00)	0.011 (1.00)	-0.002 (-0.19)	-0.002 (-0.23)
Retained	-	-0.031** (-2.21)	-0.031** (-2.20)	-0.061*** (-2.76)	-0.061*** (-2.76)	0.000 (0.00)	0.000 (0.01)
PR	+	0.108*** (8.46)	0.108*** (8.45)	0.085*** (5.50)	0.085*** (5.46)	0.139*** (5.01)	0.138*** (4.93)
VarMR	?	48.525 (1.52)	48.437 (1.52)	69.086* (1.88)	69.137* (1.88)	-73.300 (-1.07)	-74.192 (-1.08)
MR	+	0.120** (1.88)	0.120** (1.88)	0.143** (2.02)	0.143** (2.01)	-0.094 (-0.63)	-0.094 (-0.63)
F-Value		8.87***	8.36***	8.87***	8.32***	2.13**	2.00***
Adj. R-square		27.88%	27.69%	34.33%	34.04%	14.82%	14.00%
Highest VIF		2.56	2.57	2.72	2.72	2.41	2.41
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Close_Money). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 13. VICW/Restatement: OLS regression results of underpricing amount using opening price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.007 (0.49)	0.007 (0.50)	-0.015 (-0.78)	-0.015 (-0.78)	0.030 (1.46)	0.029 (1.40)
VICW	?	-0.002 (-0.68)		0.001 (0.18)		-0.009* (-1.81)	
VICW_Only	?		-0.002 (-0.57)		0.001 (0.19)		-0.007 (-1.18)
RESTATE *VICW	?		-0.002 (-0.47)		0.000 (0.07)		-0.012* (-1.72)
RESTATE *HProb(ICW)	?	0.002 (0.21)	0.002 (0.20)	-0.004 (-0.46)	-0.004 (-0.46)	0.024 (1.40)	0.024 (1.41)
RESTATE *LProb(ICW)	?	-0.013** (-2.07)	-0.013** (-2.06)	-0.015* (-1.84)	-0.015* (-1.83)	-0.012 (-1.20)	-0.012 (-1.18)
Prob(ICW)	+	0.009 (0.54)	0.009 (0.53)	0.031* (1.37)	0.031* (1.37)	-0.019 (-0.72)	-0.016 (-0.60)
LN(MV)	+	0.003** (1.79)	0.003** (1.78)	0.010*** (3.10)	0.010*** (3.09)	0.001 (0.28)	0.001 (0.32)
LN(Age)	-	0.002 (1.37)	0.002 (1.37)	0.004 (2.06)	0.004 (2.05)	-0.000 (-0.09)	-0.000 (-0.14)
HighTech	+	-0.005 (-1.86)	-0.005 (-1.86)	-0.006 (-1.97)	-0.006 (-1.97)	-0.006 (-0.98)	-0.005 (-0.89)
NASDAQ	+	0.011*** (3.27)	0.011*** (3.27)				
UW	-	0.000 (0.08)	0.000 (0.08)	0.000 (0.00)	-0.000 (-0.00)	-0.001 (-0.44)	-0.001 (-0.44)
Big4	-	-0.001 (-0.44)	-0.001 (-0.44)	-0.001 (-0.29)	-0.001 (-0.28)	0.006 (1.03)	0.006 (1.03)
RiskFactors	+	-0.000 (-1.38)	-0.000 (-1.38)	-0.000 (-0.93)	-0.000 (-0.93)	-0.000 (-0.24)	-0.000 (-0.28)
GC	-	-0.002 (-0.27)	-0.002 (-0.27)	-0.003 (-0.38)	-0.003 (-0.38)	0.021 (1.12)	0.023 (1.22)
Insider Selling	+	0.006 (1.11)	0.006 (1.10)	0.001 (0.08)	0.001 (0.09)	0.003 (0.50)	0.003 (0.43)
Retained	-	-0.015* (-1.42)	-0.015* (-1.41)	-0.037** (-2.11)	-0.037** (-2.11)	0.004 (0.27)	0.004 (0.28)
PR	+	0.106*** (10.68)	0.106*** (10.64)	0.091*** (7.41)	0.091*** (7.36)	0.128*** (6.25)	0.127*** (6.15)
VarMR	?	7.276 (0.29)	7.270 (0.29)	25.922 (0.88)	25.959 (0.88)	-98.074* (-1.95)	-99.078* (-1.96)
MR	+	0.055 (1.12)	0.055 (1.12)	0.075* (1.33)	0.075* (1.32)	-0.127 (-1.16)	-0.127 (-1.15)
F-Value		11.12***	10.47***	9.94***	9.31***	3.52***	3.32***
Adj. R-square		33.21%	33.01%	37.25%	36.97%	27.97%	27.47%
Highest VIF		2.56	2.57	2.72	2.72	2.39	2.41
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Open_Money). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 14. VICW/Restatement: OLS regression results of underpricing using closing price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.278*** (-3.61)	-0.269*** (-3.49)	-0.451*** (-4.29)	-0.438*** (-4.16)	-0.002 (-0.02)	-0.005 (-0.04)
VICW	?	-0.013* (-1.94)		-0.024 (-1.26)		-0.022 (-0.77)	
VICW_Only	?		-0.044** (-2.36)		-0.041* (-1.79)		-0.019 (-0.56)
RESTATE *VICW	?		-0.009 (-0.41)		0.003 (0.10)		-0.026 (-0.65)
RESTATE *HProb(ICW)	?	-0.002 (-0.48)	-0.023 (-0.49)	-0.029 (-0.48)	-0.029 (-0.48)	-0.040 (-0.52)	-0.039 (-0.52)
RESTATE *LProb(ICW)	?	0.026 (0.64)	0.025 (0.60)	0.009 (0.19)	0.006 (0.13)	0.133 (1.49)	0.133 (1.48)
Prob(ICW)	+	0.041 (0.46)	0.021 (0.23)	0.127 (1.09)	0.104 (0.90)	-0.142 (-1.00)	-0.139 (-0.96)
LN(MV)	+	0.040*** (3.67)	0.038*** (3.53)	0.083*** (4.63)	0.081*** (4.53)	0.020 (1.22)	0.020 (1.22)
LN(Age)	-	0.012 (1.46)	0.012 (1.47)	0.026 (2.23)	0.026 (2.21)	0.002 (0.17)	0.002 (0.15)
HighTech	+	-0.006 (-0.35)	-0.007 (-0.46)	-0.029 (-1.61)	-0.030 (-1.66)	0.072** (1.97)	0.073** (1.96)
NASDAQ	+	0.070*** (3.94)	0.071*** (3.98)				
UW	-	0.002 (0.37)	0.003 (0.40)	0.004 (0.53)	0.004 (0.57)	-0.008 (-0.75)	-0.009 (-0.74)
Big4	-	-0.033** (-1.83)	-0.033** (-1.85)	-0.020 (-0.94)	-0.022 (-1.02)	-0.028 (-0.79)	-0.028 (-0.79)
RiskFactors	+	-0.001 (-1.05)	-0.001 (-0.97)	-0.001 (-0.83)	-0.001 (-0.78)	-0.000 (-0.21)	-0.000 (-0.22)
GC	-	0.044 (0.91)	0.046 (0.95)	0.030 (0.55)	0.042 (0.75)	-0.024 (-0.24)	-0.020 (-0.20)
Insider Selling	+	0.014 (0.51)	0.014 (0.48)	-0.016 (-0.33)	-0.024 (-0.49)	-0.002 (-0.07)	-0.003 (-0.09)
Retained	-	0.178 (2.70)	0.178 (2.71)	0.075 (0.76)	0.076 (0.77)	0.168 (1.59)	0.169 (1.59)
PR	+	0.468*** (8.10)	0.476*** (8.21)	0.363*** (5.04)	0.372*** (5.15)	0.502*** (4.11)	0.499*** (4.03)
VarMR	?	250.851* (1.75)	252.718* (1.77)	297.624* (1.79)	299.001* (1.80)	-126.816 (-0.41)	-128.285 (-0.43)
MR	+	0.254 (0.90)	0.251 (0.89)	0.333 (1.05)	0.331 (1.05)	-0.250 (-0.38)	-0.248 (-0.38)
F-Value		11.29***	10.80***	10.02***	9.57***	3.35***	3.11***
Adj. R-square		38.70%	38.90%	43.03%	43.28%	30.70%	29.71%
Highest VIF		2.52	2.54	2.76	2.77	2.71	2.75
N		278	278	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Close_Underpricing). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 15. VICW/Restatement: OLS regression results of underpricing using opening price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.220*** (-3.27)	-0.218*** (-3.24)	-0.385*** (-4.27)	-0.379*** (-4.18)	0.000 (0.00)	-0.007 (-0.07)
VICW	?	-0.023* (-1.69)		-0.015 (-0.97)		-0.041 (-1.56)	
VICW_Only	?		-0.026 (-1.61)		-0.025 (-1.25)		-0.026 (-0.82)
RESTATE *VICW	?		-0.018 (-0.95)		-0.003 (-0.13)		-0.063* (-1.70)
RESTATE *HProb(ICW)	?	-0.030 (-0.78)	-0.030* (-1.78)	-0.034 (-0.72)	-0.036 (-0.75)	-0.032 (-0.45)	-0.029 (-0.41)
RESTATE *LProb(ICW)	?	-0.045 (-1.30)	-0.045 (-1.30)	-0.034 (-0.77)	-0.035 (-0.79)	-0.051 (-0.87)	-0.050 (-0.85)
Prob(ICW)	+	0.034 (0.43)	0.030 (0.37)	0.171** (1.66)	0.162* (1.56)	-0.135 (-1.01)	-0.115 (-0.84)
LN(MV)	+	0.032*** (3.37)	0.032*** (3.34)	0.061*** (4.14)	0.061*** (4.10)	0.019* (1.28)	0.020* (1.35)
LN(Age)	-	0.014 (1.97)	0.014 (1.96)	0.028 (2.89)	0.028 (2.83)	-0.002 (-0.18)	-0.003 (-0.27)
HighTech	+	-0.019 (-1.44)	-0.019 (-1.45)	-0.027 (-1.79)	-0.026 (-1.75)	0.001 (0.04)	0.006 (0.16)
NASDAQ	+	0.052*** (3.33)	0.052*** (3.33)				
UW	-	-0.002 (-0.37)	-0.002 (-0.37)	0.001 (0.10)	0.001 (0.10)	-0.015* (-1.38)	-0.015* (-1.39)
Big4	-	0.000 (0.03)	0.000 (0.02)	-0.004 (-0.21)	-0.005 (-0.28)	0.038 (1.25)	0.039 (1.26)
RiskFactors	+	-0.000 (-0.07)	-0.000 (-0.05)	0.000 (0.20)	0.000 (0.23)	0.000 (0.24)	0.000 (0.19)
GC	-	0.039 (0.97)	0.040 (0.98)	0.032 (0.69)	0.037 (0.78)	0.055 (0.59)	0.072 (0.75)
Insider Selling	+	0.013 (0.54)	0.013 (0.53)	-0.026 (-0.62)	-0.032 (-0.74)	0.030 (0.89)	0.026 (0.77)
Retained	-	0.108 (1.95)	0.109 (1.96)	0.055 (0.62)	0.054 (0.61)	0.120 (1.39)	0.121 (1.40)
PR	+	0.469*** (9.46)	0.471*** (9.44)	0.435*** (7.38)	0.440*** (7.41)	0.413*** (3.51)	0.401*** (3.38)
VarMR	?	146.693 (1.20)	145.618 (1.19)	111.877 (0.79)	108.996 (0.77)	76.956 (0.28)	77.201 (0.28)
MR	+	0.357* (1.48)	0.355* (1.47)	0.409* (1.52)	0.405* (1.50)	-0.106 (-0.18)	-0.083 (-0.14)
F-Value		12.04***	11.35***	11.96***	11.27***	2.19**	2.10**
Adj. R-square		37.72%	37.54%	44.80%	44.70%	17.00%	16.69%
Highest VIF		2.54	2.54	2.64	2.64	2.66	2.68
N		311	311	217	217	94	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Open_Underpricing). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 16. VICW/Restatement: OLS regression results of underpricing amount using closing price and excluding overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.013 (0.74)	0.013 (0.77)	-0.005 (-0.21)	-0.004 (-0.17)	0.045 (1.60)	0.044 (1.56)
VICW	?	-0.009** (-2.47)		-0.008* (-1.86)		-0.011 (-1.61)	
VICW_Only	?		-0.010** (-2.30)		-0.009* (-1.79)		-0.009 (-1.09)
RESTATE *VICW	?		-0.007 (-1.45)		-0.006 (-0.97)		-0.014 (-1.45)
RESTATE *HProb(ICW)	?	-0.009 (-0.87)	-0.009 (-0.88)	-0.008 (-0.60)	-0.008 (-0.62)	-0.012 (-0.67)	-0.012 (-0.65)
RESTATE *LProb(ICW)	?	-0.003 (-0.29)	-0.003 (-0.30)	0.011 (0.97)	0.011 (0.95)	-0.022 (-1.44)	-0.022 (-1.42)
Prob(ICW)	+	0.016 (0.80)	0.015 (0.71)	0.035* (1.30)	0.034 (1.23)	-0.013 (-0.37)	-0.010 (-0.29)
LN(MV)	+	0.008*** (3.26)	0.008*** (3.22)	0.015*** (3.75)	0.015*** (3.72)	0.005* (1.33)	0.005* (1.35)
LN(Age)	-	0.003 (1.79)	0.003 (1.78)	0.006 (2.11)	0.005 (2.07)	0.002 (0.54)	0.001 (0.48)
HighTech	+	-0.006 (-1.76)	-0.006 (-1.78)	-0.007 (-1.78)	-0.007 (-1.75)	-0.004 (-0.56)	-0.004 (-0.49)
NASDAQ	+	0.017*** (4.24)	0.017*** (4.24)				
UW	-	-0.001 (-0.40)	-0.001 (-0.39)	0.000 (0.03)	0.000 (0.03)	-0.003 (-1.10)	-0.003 (-1.10)
Big4	-	-0.010*** (-2.50)	-0.010*** (-2.51)	-0.010** (-2.02)	-0.010** (-2.05)	-0.004 (-0.47)	-0.004 (-0.46)
RiskFactors	+	-0.000 (-1.21)	-0.000 (-1.19)	-0.000 (-0.37)	-0.000 (-0.35)	-0.000 (-0.63)	-0.002 (-0.65)
GC	-	0.013 (1.24)	0.013 (1.25)	0.014 (1.13)	0.014 (1.18)	0.016 (0.63)	0.018 (0.71)
Insider Selling	+	0.007 (1.10)	0.007 (1.09)	0.005 (0.42)	0.004 (0.34)	0.002 (0.24)	0.002 (0.18)
Retained	-	-0.050*** (-3.46)	-0.050*** (-3.44)	-0.083*** (-3.57)	-0.083*** (-3.56)	-0.025 (-1.10)	-0.025 (-1.09)
PR	+	0.101*** (7.81)	0.102*** (7.82)	0.086*** (5.54)	0.087*** (5.55)	0.120*** (3.92)	0.118*** (3.82)
VarMR	?	54.161* (1.70)	53.813* (1.68)	56.528 (1.52)	56.059 (1.51)	3.939 (0.05)	3.972 (0.05)
MR	+	0.106** (1.69)	0.106** (1.68)	0.088 (1.25)	0.088 (1.24)	0.052 (0.33)	0.055 (0.35)
F-Value		8.82***	8.32***	8.59***	8.06***	1.68*	1.58*
Adj. R-square		30.02%	29.83%	35.98%	35.73%	10.50%	9.55%
Highest VIF		2.54	2.43	2.64	2.64	2.66	2.68
N		278	278	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Close_Money). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 17. VICW/Restatement: OLS regression results of underpricing amount using opening price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.011 (0.81)	0.012 (0.83)	-0.006 (-0.33)	-0.005 (-0.26)	0.032 (1.56)	0.031 (1.49)
VICW	?	-0.004 (-1.58)		-0.001 (-0.26)		-0.014*** (-2.69)	
VICW_Only	?		-0.005 (-1.48)		-0.003 (-0.62)		-0.012* (-1.87)
RESTATE *VICW	?		-0.004 (-0.92)		0.001 (0.31)		-0.017** (-2.37)
RESTATE *HProb(ICW)	?	0.000 (0.07)	0.001 (0.07)	-0.004 (-0.40)	-0.004 (-0.42)	0.008 (0.56)	0.008 (0.58)
RESTATE *LProb(ICW)	?	-0.011 (-1.56)	-0.011 (-1.56)	-0.007 (-0.74)	-0.007 (-0.76)	-0.018 (-1.56)	-0.018 (-1.54)
Prob(ICW)	+	0.010 (0.63)	0.010 (0.58)	0.032* (1.48)	0.030* (1.39)	-0.014 (-0.52)	-0.011 (-0.40)
LN(MV)	+	0.005*** (2.37)	0.005*** (2.35)	0.010*** (3.07)	0.010*** (3.04)	0.003 (1.16)	0.004 (1.21)
LN(Age)	-	0.004 (2.39)	0.004 (2.38)	0.006 (2.63)	0.005 (2.58)	0.001 (0.67)	0.001 (0.60)
HighTech	+	-0.006 (-1.99)	-0.006 (-2.00)	-0.006 (-1.75)	-0.005 (-1.72)	-0.008 (-1.33)	-0.007 (-1.23)
NASDAQ	+	0.012*** (3.73)	0.012*** (3.73)				
UW	-	0.000 (0.05)	0.000 (0.05)	0.000 (0.33)	0.000 (0.32)	-0.001 (-0.82)	-0.002 (-0.81)
Big4	-	-0.003 (-0.84)	-0.003 (-0.85)	-0.004 (-0.94)	-0.004 (-1.00)	0.005 (0.85)	0.005 (0.86)
RiskFactors	+	-0.000 (-1.36)	-0.000 (-1.34)	-0.000 (-0.12)	-0.000 (-0.10)	-0.000 (-1.02)	-0.000 (-1.05)
GC	-	0.010 (1.14)	0.010 (1.15)	0.010 (1.02)	0.011 (1.10)	0.022 (1.20)	0.024 (1.30)
Insider Selling	+	0.005 (1.00)	0.005 (0.99)	-0.003 (-0.31)	-0.004 (-0.42)	0.005 (0.80)	0.005 (0.71)
Retained	-	-0.031*** (-2.68)	-0.031*** (-2.66)	-0.058*** (-3.09)	-0.058*** (-3.10)	-0.011 (-0.69)	-0.011 (-0.68)
PR	+	0.101*** (9.86)	0.101*** (9.84)	0.093*** (7.45)	0.094*** (7.47)	0.111*** (4.90)	0.109*** (4.76)
VarMR	?	3.477 (0.14)	3.293 (0.13)	7.061 (0.24)	6.524 (0.22)	-42.078 (-0.79)	-42.043 (-0.79)
MR	+	0.046 (0.93)	0.046 (0.92)	0.035 (0.62)	0.035 (0.61)	-0.014 (-0.12)	-0.011 (-0.09)
F-Value		10.49***	9.88***	9.45***	8.90***	2.85***	2.69***
Adj. R-square		34.22%	34.02%	38.49%	38.33%	24.15%	23.57%
Highest VIF		2.54	2.54	2.64	2.64	2.66	2.68
N		311	311	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). VICW is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, and 0 otherwise.

[b] Dependent variable is LN(Open_Money). VICW_Only is coded 1 if the IPO firm discloses internal control weakness over financial reporting in the prospectus, but does not disclose restatement attributed to accounting errors in the prospectus, and 0 otherwise.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

7.2.2 The Effect of Specificity on Underpricing

So far, I used an indicator variable, VICW as the dependent variable to investigate the effect of voluntary disclosure of internal control weaknesses on underpricing. Next, I use a continuous variable, Specificity, measured as the number of internal control weaknesses disclosed in the prospectus.

7.2.2.1 Full Sample

Tables 18 to 21 report the OLS regression results. Table 18 reports the OLS regression results using LN(Close_Underpricing) as the dependent variable. The second column in Table 18 shows that for the full sample, Specificity_Only variable is negative and marginally significant, indicating that more specific voluntary disclosure of internal control weakness lowers underpricing by reducing *ex ante* uncertainty about the new issue. At most of other analyses, I find negative association between Specificity variable and underpricing, but the results are not statistically significant.

7.2.2.2 Sample excluding IPO Firms with Overpricing

Next, Tables 22 to 25 report OLS regression results only for IPO firms with underpricing or 'zero' underpricing.

According to the fifth column in Table 25, only when I use LN(Open_Money) as the dependent variable, I find that Specificity variable is negative and marginally significant for NYSE/AMEX IPO sample firms. None of the other OLS regression results is statistically significant.

Table 18. Specificity: OLS regression results of underpricing using closing price and including overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.272*** (-3.51)	-0.264*** (-3.40)	-0.469*** (-4.45)	-0.461*** (-4.37)	-0.001 (-0.01)	-0.002 (-0.02)
Specificity	?	-0.004 (-1.24)		-0.006 (-1.44)		-0.003 (-0.30)	
Specificity_Only	?		-0.009* (-1.86)		-0.011* (-1.83)		-0.003 (-0.27)
RESTATE *Specificity	?		-0.001 (-0.18)		-0.003 (-0.56)		-0.004 (-0.18)
RESTATE *HProb(ICW)	?	-0.077* (-1.67)	-0.078* (-1.68)	-0.095* (-1.80)	-0.097* (-1.84)	-0.043 (-0.44)	-0.044 (-0.44)
RESTATE *LProb(ICW)	?	-0.017 (-0.48)	-0.018 (-0.52)	0.004 (0.10)	0.002 (0.06)	-0.042 (-0.71)	-0.042 (-0.70)
Prob(ICW)	+	0.085 (0.88)	0.065 (0.66)	0.192* (1.54)	0.181* (1.45)	-0.109 (-0.68)	-0.104 (-0.54)
LN(MV)	+	0.038*** (3.48)	0.037*** (3.43)	0.081*** (4.76)	0.082*** (4.80)	0.010 (0.62)	0.010 (0.59)
LN(Age)	-	0.008 (0.96)	0.007 (0.88)	0.025 (2.16)	0.025 (2.13)	-0.006 (-0.52)	-0.006 (-0.52)
HighTech	+	-0.014 (-0.92)	-0.014 (-0.92)	-0.032 (-1.84)	-0.031 (-1.74)	0.042 (1.19)	0.042 (1.18)
NASDAQ	+	0.067*** (3.70)	0.067*** (3.67)				
UW	-	-0.000 (-0.01)	0.000 (0.02)	-0.000 (-0.02)	-0.000 (-0.02)	-0.011 (-0.93)	-0.011 (-0.92)
Big4	-	-0.024* (-1.35)	-0.024* (-1.37)	-0.021 (-0.99)	-0.023 (-1.07)	0.010 (0.29)	0.010 (0.29)
RiskFactors	+	0.000 (0.15)	0.000 (0.14)	-0.000 (-0.29)	-0.000 (-0.31)	0.001 (0.99)	0.001 (0.99)
GC	-	-0.011 (-0.27)	-0.009 (-0.24)	-0.016 (-0.37)	-0.014 (-0.32)	0.001 (0.01)	0.002 (0.02)
Insider Selling	+	0.023 (0.81)	0.021 (0.73)	0.023 (0.47)	0.010 (0.20)	0.004 (0.10)	0.004 (0.10)
Retained	-	0.098 (1.62)	0.102 (1.69)	0.059 (0.62)	0.054 (0.56)	0.123 (1.42)	0.123 (1.40)
PR	+	0.526*** (9.46)	0.529*** (9.51)	0.416*** (6.16)	0.420*** (6.21)	0.565*** (4.77)	0.565*** (4.73)
VarMR	?	330.496** (2.36)	317.616** (2.27)	304.126* (1.88)	294.454* (1.81)	130.741 (0.45)	130.670 (0.45)
MR	+	0.751*** (2.71)	0.743*** (2.68)	0.821*** (2.65)	0.804*** (2.60)	0.119 (0.19)	0.120 (0.19)
F-Value		12.70***	12.13***	12.34***	11.72***	3.04***	2.83***
Adj. R-square		36.49%	36.67%	42.96%	43.06%	23.90%	23.02%
Highest VIF		2.57	2.57	2.73	2.73	2.47	2.75
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Close_Underpricing). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 19. Specificity: OLS regression results of underpricing using opening price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.211*** (-3.27)	-0.208*** (-3.22)	-0.395*** (-4.55)	-0.394*** (-4.51)	0.014 (0.14)	-0.004 (-0.04)
Specificity	?	-0.001 (-0.39)		-0.000 (-0.14)		-0.010 (-1.22)	
Specificity_Only	?		-0.003 (-0.63)		-0.002 (-0.32)		-0.009 (-0.98)
RESTATE *Specificity	?		-0.000 (-0.01)		0.000 (0.05)		-0.019 (-1.10)
RESTATE *HProb(ICW)	?	-0.036 (-0.95)	-0.037 (-0.95)	-0.050 (-1.16)	-0.051 (-1.17)	-0.011 (-0.13)	-0.013 (-0.15)
RESTATE *LProb(ICW)	?	-0.047 (-1.60)	-0.048 (-1.61)	-0.054 (-1.46)	-0.054 (-1.47)	-0.035 (-0.70)	-0.036 (-0.70)
Prob(ICW)	+	0.031 (0.39)	0.025 (0.31)	0.160* (1.56)	0.158* (1.53)	-0.108 (-0.79)	-0.056 (-0.34)
LN(MV)	+	0.027*** (2.98)	0.027*** (2.95)	0.060*** (4.26)	0.060*** (4.26)	0.014 (0.98)	0.016 (1.11)
LN(Age)	-	0.010 (1.43)	0.010 (1.40)	0.024 (2.51)	0.024 (2.50)	-0.005 (-0.49)	-0.005 (-0.52)
HighTech	+	-0.017 (-1.33)	-0.017 (-1.33)	-0.030 (-2.06)	-0.029 (-2.02)	0.012 (0.40)	0.015 (0.48)
NASDAQ	+	0.050*** (3.28)	0.049*** (3.26)				
UW	-	-0.001 (-0.20)	-0.001 (-0.18)	-0.001 (-0.11)	-0.001 (-0.11)	-0.014 (-1.33)	-0.014 (-1.37)
Big4	-	0.005 (0.31)	0.004 (0.30)	0.005 (0.30)	0.005 (0.28)	0.039 (1.36)	0.038 (1.34)
RiskFactors	+	0.000 (0.23)	0.000 (0.23)	0.000 (0.30)	0.000 (0.30)	0.001 (0.76)	0.001 (0.78)
GC	-	-0.001 (-0.04)	(-0.001) (-0.03)	-0.008 (-0.23)	-0.008 (-0.22)	0.043 (0.48)	0.055 (0.60)
Insider Selling	+	0.014 (0.57)	0.013 (0.54)	-0.017 (-0.41)	-0.019 (-0.46)	0.031 (0.95)	0.031 (0.93)
Retained	-	0.110 (2.18)	0.111 (2.21)	0.082 (1.04)	0.081 (1.02)	0.102 (1.37)	0.096 (1.27)
PR	+	0.491*** (10.62)	0.491*** (10.62)	0.429*** (7.71)	0.430*** (7.70)	0.475*** (4.68)	0.472*** (4.62)
VarMR	?	140.216 (1.21)	136.273 (1.17)	121.791 (0.91)	119.763 (0.89)	-78.958 (-0.32)	-79.793 (-0.32)
MR	+	0.405** (1.76)	0.402** (1.74)	0.529** (2.07)	0.525** (2.05)	-0.318 (-0.58)	-0.304 (-0.56)
F-Value		13.46***	12.70***	13.43***	12.59***	2.76***	2.59***
Adj. R-square		37.97%	37.83%	45.21%	44.99%	21.27%	20.67%
Highest VIF		2.57	2.57	2.73	2.73	2.47	2.75
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Open_Underpricing). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 20. Specificity: OLS regression results of underpricing amount using closing price and including overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.004 (0.24)	0.006 (0.33)	-0.016 (-0.66)	-0.014 (-0.60)	0.039 (1.41)	0.030 (1.04)
Specificity	?	-0.001 (-1.11)		-0.001 (-1.21)		-0.002 (-0.85)	
Specificity_Only	?		-0.002 (-1.62)		-0.002 (-1.58)		-0.001 (-0.50)
RESTATE *Specificity	?		-0.000 (-0.18)		-0.000 (-0.44)		-0.006 (-1.34)
RESTATE *HProb(ICW)	?	-0.008 (-0.73)	-0.008 (-0.74)	-0.010 (-0.83)	-0.010 (-0.87)	-0.001 (-0.04)	-0.002 (-0.09)
RESTATE *LProb(ICW)	?	-0.006 (-0.75)	-0.006 (-0.78)	-0.001 (-0.14)	-0.002 (-0.18)	-0.016 (-1.13)	-0.016 (-1.15)
Prob(ICW)	+	0.017 (0.78)	0.013 (0.59)	0.036 (1.26)	0.034 (1.18)	-0.013 (-0.35)	0.013 (0.28)
LN(MV)	+	0.007*** (2.68)	0.007*** (2.63)	0.015*** (3.73)	0.015*** (3.76)	0.002 (0.57)	0.004 (0.88)
LN(Age)	-	0.001 (0.66)	0.001 (0.59)	0.004 (1.53)	0.004 (1.50)	-0.001 (-0.39)	-0.001 (-0.44)
HighTech	+	-0.005 (-1.52)	-0.005 (-1.51)	-0.007 (-1.82)	-0.007 (-1.73)	-0.002 (-0.28)	-0.001 (-0.13)
NASDAQ	+	0.016*** (3.91)	0.016*** (3.88)				
UW	-	-0.000 (-0.20)	-0.000 (-0.17)	-0.000 (-0.09)	-0.000 (-0.09)	-0.003 (-0.93)	-0.003 (-1.02)
Big4	-	-0.009** (-2.21)	-0.009** (-2.23)	-0.007* (-1.54)	-0.008* (-1.61)	-0.002 (-0.24)	-0.002 (-0.25)
RiskFactors	+	-0.000 (-1.29)	-0.000 (-1.30)	-0.000 (-1.31)	-0.000 (-1.33)	0.000 (0.18)	0.000 (0.23)
GC	-	-0.003 (-0.30)	-0.002 (-0.27)	-0.003 (-0.27)	-0.002 (-0.22)	0.012 (0.47)	0.018 (0.71)
Insider Selling	+	0.008* (1.28)	0.008 (1.21)	0.012 (1.04)	0.009 (0.79)	-0.000 (-0.05)	-0.001 (-0.07)
Retained	-	-0.030** (-2.20)	-0.030** (-2.13)	-0.060*** (-2.75)	-0.061*** (-2.80)	0.000 (0.01)	-0.003 (-0.14)
PR	+	0.107*** (8.39)	0.108*** (8.43)	0.084*** (5.44)	0.085*** (5.49)	0.137*** (4.91)	0.135*** (4.84)
VarMR	?	51.955 (1.62)	49.400 (1.54)	75.119** (2.03)	73.165** (1.97)	-75.928 (1.11)	-76.348 (-1.12)
MR	+	0.122** (1.91)	0.120** (1.88)	0.144** (2.03)	0.140** (1.98)	-0.091 (-0.61)	-0.084 (-0.56)
F-Value		8.79***	8.39***	8.85***	8.40***	2.14**	2.08**
Adj. R-square		27.69%	27.78%	34.27%	34.30%	14.91%	15.03%
Highest VIF		2.57	2.57	2.73	2.73	2.47	2.75
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Close_Money). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 21. Specificity: OLS regression results of underpricing amount using opening price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.008 (0.56)	0.008 (0.59)	-0.014 (-0.74)	-0.014 (-0.74)	0.029 (1.41)	0.025 (1.16)
Specificity	?	0.000 (0.45)		0.000 (0.60)		-0.002 (-1.42)	
Specificity_Only	?		0.000 (0.08)		0.000 (0.45)		-0.002 (-1.17)
RESTATE *Specificity	?		0.000 (0.55)		0.000 (0.46)		-0.004 (-1.21)
RESTATE *HProb(ICW)	?	0.003 (0.30)	0.002 (0.30)	-0.004 (-0.44)	-0.004 (-0.44)	0.024 (1.42)	0.024 (1.39)
RESTATE *LProb(ICW)	?	-0.012* (-1.94)	-0.012* (-1.95)	-0.015* (-1.82)	-0.015* (-1.82)	-0.011 (-1.08)	-0.011 (-1.08)
Prob(ICW)	+	0.007 (0.39)	0.006 (0.34)	0.029* (1.29)	0.029* (1.29)	-0.012 (-0.44)	-0.001 (-0.04)
LN(MV)	+	0.003* (1.62)	0.003* (1.60)	0.009*** (3.03)	0.009*** (3.02)	0.001 (0.31)	0.001 (0.48)
LN(Age)	-	0.002 (1.38)	0.002 (1.36)	0.004 (2.03)	0.004 (2.03)	-0.001 (-0.28)	-0.001 (-0.31)
HighTech	+	-0.005 (-1.97)	-0.005 (-1.97)	-0.007 (-2.04)	-0.007 (-2.03)	-0.006 (-0.94)	-0.005 (-0.84)
NASDAQ	+	0.011*** (3.23)	0.010*** (3.21)				
UW	-	0.000 (0.11)	0.000 (0.12)	0.000 (0.02)	0.000 (0.02)	-0.001 (-0.53)	-0.001 (-0.59)
Big4	-	-0.001 (-0.42)	-0.001 (-0.43)	-0.001 (-0.27)	-0.001 (-0.27)	0.006 (1.03)	0.006 (1.02)
RiskFactors	+	-0.000 (-1.33)	-0.000 (-1.33)	-0.000 (-0.88)	-0.000 (-0.88)	-0.000 (-0.27)	-0.000 (-0.24)
GC	-	-0.003 (-0.35)	-0.002 (-0.35)	-0.003 (-0.35)	-0.003 (-0.36)	0.016 (0.89)	0.019 (1.01)
Insider Selling	+	0.005 (0.98)	0.005 (0.95)	0.000 (0.04)	0.001 (0.06)	0.004 (0.65)	0.004 (0.63)
Retained	-	-0.015* (-1.36)	-0.015* (-1.34)	-0.037** (-2.09)	-0.037** (-2.08)	0.004 (0.28)	0.003 (0.20)
PR	+	0.107*** (10.70)	0.107*** (10.69)	0.092*** (7.43)	0.092*** (7.41)	0.125*** (6.07)	0.125*** (6.00)
VarMR	?	6.228 (0.25)	5.680 (0.23)	23.590 (0.80)	23.715 (0.80)	-101.405** (-2.00)	-101.581** (-2.00)
MR	+	0.055 (1.11)	0.055 (1.10)	0.075* (1.33)	0.075* (1.33)	-0.124 (-1.12)	-0.121 (-1.09)
F-Value		11.10***	10.46***	9.98***	9.35***	3.40***	3.20***
Adj. R-square		33.16%	32.98%	37.34%	37.06%	26.95%	26.42%
Highest VIF		2.57	2.57	2.73	2.73	2.47	2.75
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Open_Money). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 22. Specificity: OLS regression results of underpricing using closing price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.278*** (-3.59)	-0.264*** (-3.39)	-0.458*** (-4.34)	-0.444*** (-4.18)	-0.011 (-0.10)	-0.036 (-0.28)
Specificity	?	-0.003 (-0.86)		-0.002 (-0.54)		-0.011 (-1.00)	
Specificity_Only	?		-0.009 (-1.61)		-0.008 (-1.18)		-0.009 (-0.76)
RESTATE *Specificity	?		0.001 (0.16)		0.001 (0.11)		-0.020 (-0.95)
RESTATE *HProb(ICW)	?	-0.016 (-0.35)	-0.018 (-0.39)	-0.024 (-0.39)	-0.026 (-0.43)	-0.043 (-0.57)	-0.043 (-0.57)
RESTATE *LProb(ICW)	?	0.032 (0.77)	0.030 (0.73)	0.013 (0.28)	0.010 (0.22)	0.134 (1.52)	0.136 (1.53)
Prob(ICW)	+	0.043 (0.47)	0.017 (0.18)	0.128 (1.09)	0.111 (0.94)	-0.102 (-0.67)	-0.049 (-0.26)
LN(MV)	+	0.038*** (3.51)	0.037*** (3.33)	0.082*** (4.55)	0.082*** (4.50)	0.022* (1.32)	0.025* (1.41)
LN(Age)	-	0.012 (1.42)	0.012 (1.39)	0.027 (2.28)	0.027 (2.30)	0.001 (0.05)	0.000 (0.04)
HighTech	+	-0.007 (-0.41)	-0.008 (-0.48)	-0.031 (-1.69)	-0.030 (-1.67)	0.072** (1.98)	0.075** (2.03)
NASDAQ	+	0.072*** (3.99)	0.071*** (3.94)				
UW	-	0.002 (0.36)	0.003 (0.44)	0.004 (0.54)	0.004 (0.59)	-0.010 (-0.84)	-0.010 (-0.87)
Big4	-	-0.033** (-1.78)	-0.033** (-1.80)	-0.019 (-0.88)	-0.021 (-0.96)	-0.026 (-0.74)	-0.028 (-0.77)
RiskFactors	+	-0.001 (-1.03)	-0.001 (-1.01)	-0.001 (-0.81)	-0.001 (-0.81)	-0.000 (-0.20)	-0.000 (-0.22)
GC	-	0.030 (0.63)	0.032 (0.68)	0.022 (0.40)	0.027 (0.48)	-0.025 (-0.25)	-0.011 (-0.11)
Insider Selling	+	0.013 (0.46)	0.013 (0.46)	-0.016 (-0.51)	-0.027 (-0.52)	0.006 (0.16)	0.005 (0.12)
Retained	-	0.179 (2.69)	0.182 (2.75)	0.077 (0.77)	0.070 (0.70)	0.167 (1.58)	0.163 (1.54)
PR	+	0.468*** (8.05)	0.476*** (8.17)	0.361*** (4.99)	0.370*** (5.08)	0.503*** (4.14)	0.496*** (4.02)
VarMR	?	268.971* (1.86)	257.714* (1.78)	313.854* (1.86)	312.450* (1.85)	-149.426 (-0.49)	-150.639 (-0.49)
MR	+	0.279 (0.98)	0.258 (0.91)	0.357 (1.13)	0.330 (1.04)	-0.250 (-0.39)	-0.222 (-0.34)
F-Value		10.98***	10.52***	9.87***	9.36***	3.40***	3.18***
Adj. R-square		37.99%	38.23%	42.62%	42.67%	31.11%	30.37%
Highest VIF		2.53	2.56	2.80	2.80	2.80	3.30
N		278	347	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Close_Underpricing). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 23. Specificity: OLS regression results of underpricing using opening price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.218*** (-3.23)	-0.215*** (-3.17)	-0.387*** (-4.27)	-0.384*** (-4.21)	-0.003 (-0.02)	-0.022 (-0.20)
Specificity	?	-0.002 (-0.59)		-0.001 (-0.31)		-0.014 (-1.39)	
Specificity_Only	?		-0.004 (-0.86)		-0.004 (-0.73)		-0.011 (-1.07)
RESTATE *Specificity	?		-0.000 (-0.12)		0.000 (0.11)		-0.023 (-1.24)
RESTATE *HProb(ICW)	?	-0.025 (-0.63)	-0.025 (-0.64)	-0.030 (-0.63)	-0.031 (-0.65)	-0.032 (-0.45)	-0.034 (-0.47)
RESTATE *LProb(ICW)	?	-0.039 (-1.13)	-0.040 (-1.15)	-0.031 (-0.69)	-0.032 (-0.72)	-0.045 (-0.77)	-0.045 (-0.76)
Prob(ICW)	+	0.031 (0.38)	0.023 (0.28)	0.168* (1.62)	0.163* (1.56)	-0.092 (-0.64)	-0.037 (-0.22)
LN(MV)	+	0.031*** (3.20)	0.030*** (3.17)	0.060*** (4.05)	0.061*** (4.07)	0.020* (1.29)	0.023* (1.41)
LN(Age)	-	0.014 (1.92)	0.014 (1.89)	0.029 (2.88)	0.029 (2.86)	-0.004 (-0.38)	-0.005 (-0.42)
HighTech	+	-0.020 (-1.47)	-0.020 (-1.47)	-0.028 (-1.84)	-0.027 (-1.78)	0.003 (0.09)	0.006 (0.18)
NASDAQ	+	0.052*** (3.32)	0.052*** (3.31)				
UW	-	-0.002 (-0.38)	-0.002 (-0.36)	0.001 (0.10)	0.001 (0.11)	-0.016* (-1.48)	-0.017* (-1.53)
Big4	-	0.001 (0.04)	0.000 (0.03)	-0.003 (-0.17)	-0.004 (-0.22)	0.040 (1.29)	0.039 (1.28)
RiskFactors	+	-0.000 (-0.02)	-0.000 (-0.03)	0.000 (0.25)	0.000 (0.24)	0.000 (0.27)	0.000 (0.29)
GC	-	0.030 (0.73)	0.030 (0.75)	0.026 (0.58)	0.028 (0.61)	0.041 (0.44)	0.054 (0.56)
Insider Selling	+	0.012 (0.47)	0.011 (0.44)	-0.026 (-0.61)	-0.033 (-0.76)	0.038 (1.06)	0.037 (1.02)
Retained	-	0.112 (2.01)	0.114 (2.03)	0.059 (0.66)	0.055 (0.61)	0.120 (1.38)	0.112 (1.26)
PR	+	0.469*** (9.40)	0.471*** (9.41)	0.435*** (7.35)	0.437*** (7.36)	0.417*** (3.53)	0.409*** (3.43)
VarMR	?	154.262 (1.25)	148.226 (1.19)	119.869 (0.84)	114.006 (0.80)	36.814 (0.13)	44.023 (0.16)
MR	+	0.362* (1.49)	0.356* (1.46)	0.418* (1.55)	0.405* (1.50)	-0.131 (-0.22)	-0.092 (-0.15)
F-Value		11.80***	11.14***	11.85***	11.16***	2.15**	2.03**
Adj. R-square		37.19%	37.06%	44.57%	44.42%	16.49%	15.78%
Highest VIF		2.53	2.54	2.65	2.66	2.71	3.04
N		311	311	217	217	94	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Open_Underpricing). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 24. Specificity: OLS regression results of underpricing amount using closing price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.027* (1.70)	0.030* (1.89)	0.004 (0.17)	0.007 (0.32)	0.071*** 2.84	0.064** (2.35)
Specificity	?	-0.000 (-0.44)		-0.000 (-0.02)		-0.004 (-1.55)	
Specificity_Only	?		-0.002 (-1.46)		-0.001 (-1.01)		-0.003 (-1.21)
RESTATE *Specificity	?		0.001 (0.61)		0.001 (0.66)		-0.006 (-1.42)
RESTATE *HProb(ICW)	?	-0.003 (-0.35)	-0.004 (-0.39)	-0.002 (-0.14)	-0.002 (-0.18)	-0.017 (-1.03)	-0.016 (-1.03)
RESTATE *LProb(ICW)	?	0.003 (0.31)	0.002 (0.26)	0.000 (0.01)	-0.001 (-0.07)	0.019 (1.00)	0.011 (0.28)
Prob(ICW)	+	0.009 (0.49)	0.003 (0.16)	0.018 (0.73)	0.014 (0.56)	-0.005 (-0.16)	0.014 (0.37)
LN(MV)	+	0.007*** (2.99)	0.006*** (2.78)	0.014*** (3.74)	0.014*** (3.70)	0.005* (1.56)	0.007** (1.72)
LN(Age)	-	0.003 (1.99)	0.003 (1.95)	0.005 (2.28)	0.006 (2.20)	0.002 (0.89)	0.002 (0.88)
HighTech	+	-0.003 (-0.91)	-0.003 (-0.99)	-0.007 (-1.85)	-0.007 (-1.84)	0.008 (1.04)	0.009 (1.15)
NASDAQ	+	0.017*** (4.61)	0.017*** (4.58)				
UW	-	0.001 (0.42)	0.001 (0.51)	0.001 (0.91)	0.002 (0.98)	-0.003 (-1.21)	-0.003 (-1.26)
Big4	-	-0.009*** (-2.39)	-0.009*** (-2.42)	-0.007* (-1.53)	-0.007* (-1.63)	-0.007 (-0.96)	-0.008 (-1.02)
RiskFactors	+	-0.000 (-2.73)	-0.000 (-2.71)	-0.001 (-2.24)	-0.001 (-2.24)	-0.000 (-1.06)	-0.000 (-1.07)
GC	-	0.007 (0.69)	0.007 (0.75)	0.009 (0.80)	0.010 (0.09)	-0.004 (-0.18)	0.000 (0.02)
Insider Selling	+	0.004 (0.75)	0.004 (0.75)	-0.000 (-0.03)	-0.003 (-0.28)	0.004 (0.52)	0.004 (0.47)
Retained	-	-0.005*** (-3.98)	-0.054*** (-3.93)	-0.076*** (-3.70)	-0.077*** (-3.78)	-0.055*** (-2.43)	-0.056*** (-2.47)
PR	+	0.090*** (7.53)	0.092*** (7.68)	0.071*** (4.84)	0.073*** (4.96)	0.110*** (4.20)	0.107*** (4.07)
VarMR	?	44.813 (1.50)	42.161 (1.41)	70.291** (2.04)	69.951** (2.04)	-76.954 (-1.17)	-77.326 (-1.17)
MR	+	0.030 (0.51)	0.025 (0.43)	0.026 (0.41)	0.020 (0.31)	-0.041 (-0.30)	-0.033 (-0.23)
F-Value		7.94***	7.69***	7.66***	7.34***	2.29***	2.17**
Adj. R-square		29.87%	30.29%	35.82%	36.06%	19.56%	19.02%
Highest VIF		2.53	2.56	2.80	2.80	2.80	3.30
N		278	278	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Close_Money). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 25. Specificity: OLS regression results of underpricing amount using opening price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.013 (0.90)	0.013 (0.93)	-0.005 (-0.28)	-0.005 (-0.25)	0.032 (1.54)	0.028 (1.26)
Specificity	?	0.000 (0.15)		0.000 (0.59)		-0.004* (-1.99)	
Specificity_Only	?		-0.000 (-0.28)		0.000 (0.01)		-0.003 (-1.58)
RESTATE *Specificity	?		0.000 (0.43)		0.001 (0.75)		-0.006* (-1.65)
RESTATE *HProb(ICW)	?	0.002 (0.24)	0.002 (0.23)	-0.004 (-0.35)	-0.004 (-0.36)	0.008 (0.58)	0.008 (0.55)
RESTATE *LProb(ICW)	?	-0.010 (-1.34)	-0.010 (-1.35)	-0.006 (-0.67)	-0.006 (-0.69)	-0.015 (-1.31)	-0.015 (-1.31)
Prob(ICW)	+	0.007 (0.44)	0.006 (0.35)	0.030* (1.37)	0.029* (1.32)	-0.003 (-0.10)	0.010 (0.29)
LN(MV)	+	0.004** (2.12)	0.004** (2.09)	0.009*** (2.96)	0.009*** (2.98)	0.003 (1.08)	0.004 (1.25)
LN(Age)	-	0.004 (2.36)	0.003 (2.33)	0.005 (2.60)	0.005 (2.59)	0.001 (0.35)	0.001 (0.31)
HighTech	+	-0.006 (-2.12)	-0.006 (-2.11)	-0.006 (-1.86)	-0.006 (-1.82)	-0.007 (-1.21)	-0.007 (-1.08)
NASDAQ	+	0.012** (3.67)	0.012*** (3.66)				
UW	-	0.000 (0.04)	0.000 (0.05)	0.000 (0.32)	0.000 (0.33)	-0.002 (-0.93)	-0.002 (-0.99)
Big4	-	-0.003 (-0.81)	-0.003 (-0.82)	-0.004 (-0.90)	-0.004 (-0.93)	0.005 (0.88)	0.005 (0.86)
RiskFactors	+	-0.000 (-1.24)	-0.000 (-1.25)	-0.000 (-0.03)	-0.000 (-0.03)	-0.000 (-0.95)	-0.000 (-0.92)
GC	-	0.008 (0.91)	0.008 (0.92)	0.010 (1.00)	0.010 (1.03)	0.016 (0.86)	0.019 (0.99)
Insider Selling	+	0.004 (0.82)	0.004 (0.79)	-0.003 (-0.35)	-0.004 (-0.45)	0.007 (0.99)	0.007 (0.94)
Retained	-	-0.030*** (-2.58)	-0.029*** (-2.55)	-0.057*** (-3.06)	-0.058*** (-3.08)	-0.011 (-0.66)	-0.013 (-0.76)
PR	+	0.101*** (9.84)	0.102*** (9.85)	0.094*** (7.48)	0.094*** (7.48)	0.112*** (4.85)	0.110*** (4.72)
VarMR	?	3.000 (0.12)	1.953 (0.08)	4.691 (0.16)	3.844 (0.13)	-54.418 (-1.00)	-52.745 (-0.97)
MR	+	0.047 (0.93)	0.046 (0.91)	0.036 (0.64)	0.035 (0.60)	-0.024 (-0.20)	-0.015 (-0.12)
F-Value		10.26***	9.68***	9.48***	8.90***	2.55***	2.42***
Adj. R-square		33.67%	33.50%	38.57%	38.33%	21.10%	20.59%
Highest VIF		2.53	2.54	2.65	2.66	2.71	3.04
N		311	311	217	217	94	94

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). Specificity is the number of internal control weaknesses disclosed in the IPO prospectus.

[b] Dependent variable is LN(Open_Money). Specificity_Only is the number of internal control weaknesses disclosed in the prospectus of the IPO firm which does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

7.2.3 The Effect of Remediation Status on Underpricing

Next, I investigate the effect of remediation status on underpricing.

7.2.3.1 Full Sample

Tables 26 to 29 present the OLS regression results. Table 26 reports the OLS regression results using LN(Close_Underpricing) as the dependent variable. The second column in Table 26 shows that for the full sample, Remediation_Only variable is negative and marginally significant, suggesting that remediation status lowers underpricing by reducing *ex ante* uncertainty about IPO firms shares. None of the test variables is significant in other tables.

Table 29 reports the OLS regression results using LN(Open_Money) as the dependent variable. The fifth and sixth columns in Table 29 report that both Remediation and RESTATE*Remediation variables are negative and marginally significant for NYSE/AMEX IPO sample firms. Other results are not statistically significant.

7.2.3.2 Sample excluding IPO Firms with Overpricing

Next, I only focus on IPO firms with underpricing or 'zero' underpricing. The OLS regression results are presented at Tables 30 through 33.

Table 30 reports the OLS regression results using LN(Close_Underpricing) as the dependent variable. The first and second columns in Table 30 show that for the full sample, Remediation and Remediation_Only variables are negative and significant at the 5 and 1 percent levels, respectively. Also, according to the fourth column in Table 30, Remediation_Only variable is negative and significant at the 5 percent level for NASDAQ IPO sample firms (n=192).

Table 31 reports the OLS regression results using LN(Open_Underpricing) as the dependent variable. The first and second columns in Table 31 show that for the full sample, Remediation and Remediation_Only variables are negative and significant at the 10 and 5 percent levels, respectively. The fifth column in Table 31 reports that Remediation variable is negative and marginally significant for NYSE/AMEX IPO sample firms (n=94).

Table 32 reports the OLS regression results using LN(Close_Money) as the dependent variable. The first and second columns in Table 32 show that for the full sample, Remediation and Remediation_Only variables are negative and significant at the 5 and 1 percent levels, respectively. The fourth column in Table 32 reports that Remediation_Only variable is negative and significant at the 5 percent level for NASDAQ IPO sample firms. Additionally, according to the fifth and sixth columns in Table 32, Remediation and Remediation_Only variables are negative and significant at

the 5 and 10 percent levels, respectively.

Table 33 reports the OLS regression results using LN(Open_Money) as the dependent variable. The fifth column in Table 33 reports that Remediation and Remediation_Only variables are negative and significant at the 1 and 5 percent levels, respectively for NYSE/AMEX IPO sample firms. Additionally, the interaction term of RESTATE*Remediation in the sixth column is negative and significant at the 5 percent level, implying that accounting restatement and subsequent identification and remediation of internal control weaknesses lead to lower underpricing.

Table 26. Remediation: OLS regression results of underpricing using closing price and including overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
Variable	Exp. sign	Coefficient (t-statistics) (1)	Coefficient (t-statistics) (2)	Coefficient (t-statistics) (3)	Coefficient (t-statistics) (4)	Coefficient (t-statistics) (5)	Coefficient (t-statistics) (6)
Intercept		-0.266*** (-3.44)	-0.260*** (-3.37)	-0.460*** (-4.37)	-0.454*** (-4.29)	0.005 (0.05)	0.008 (0.07)
Remediation	?	-0.009 (-1.23)		-0.012 (-1.44)		-0.001 (-0.08)	
Remediation_Only	?		-0.015* (-1.81)		-0.016 (-1.57)		-0.004 (-0.26)
RESTATE *Remediation	?		0.002 (0.16)		-0.006 (-0.50)		0.004 (0.21)
RESTATE *HProb(ICW)	?	-0.079* (-1.70)	-0.079* (-1.71)	-0.097* (-1.85)	-0.098* (-1.86)	-0.043 (-0.44)	-0.044 (-0.44)
RESTATE *LProb(ICW)	?	-0.019 (-0.53)	-0.019 (-0.54)	0.002 (0.04)	0.001 (0.03)	-0.040 (-0.68)	-0.040 (-0.68)
Prob(ICW)	+	0.074 (0.78)	0.055 (0.57)	0.180* (1.46)	0.171* (1.38)	-0.123 (-0.81)	-0.132 (-0.85)
LN(MV)	+	0.037*** (3.46)	0.036*** (3.37)	0.081*** (4.74)	0.080*** (4.69)	0.009 (0.56)	0.008 (0.54)
LN(Age)	-	0.008 (0.99)	0.008 (0.96)	0.025 (2.14)	0.025 (2.08)	-0.006 (-0.48)	-0.005 (-0.44)
HighTech	+	-0.016 (-1.02)	-0.017 (-1.11)	-0.034 (-1.94)	-0.033 (-1.92)	0.042 (1.19)	0.040 (0.11)
NASDAQ	+	0.066*** (3.63)	0.066** (3.65)				
UW	-	0.000 (0.01)	0.000 (0.05)	-0.000 (-0.01)	0.000 (0.01)	-0.011 (-0.91)	-0.011 (-0.90)
Big4	-	-0.024* (-1.34)	-0.025* (-1.39)	-0.022 (-1.02)	-0.023 (-1.07)	0.009 (0.26)	0.008 (0.25)
RiskFactors	+	0.000 (0.19)	0.000 (0.24)	-0.000 (-0.26)	-0.000 (-0.24)	0.001 (0.99)	0.001 (0.99)
GC	-	-0.005 (-0.13)	-0.003 (-0.07)	-0.010 (-0.22)	-0.006 (-0.14)	-0.002 (-0.02)	-0.009 (-0.09)
Insider Selling	+	0.022 (0.77)	0.021 (0.75)	0.021 (0.42)	0.016 (0.32)	0.001 (0.03)	0.003 (0.08)
Retained	-	0.098 (1.62)	0.102 (1.69)	0.059 (0.61)	0.060 (0.62)	0.123 (1.42)	0.124 (1.42)
PR	+	0.530*** (9.54)	0.536*** (9.64)	0.422*** (6.25)	0.426*** (6.28)	0.568*** (4.82)	0.572*** (4.81)
VarMR	?	315.499** (2.27)	312.885** (2.25)	278.725* (1.73)	277.540* (1.72)	133.802 (0.86)	135.159 (0.48)
MR	+	0.752*** (2.71)	0.754*** (2.72)	0.828*** (2.67)	0.828*** (2.67)	0.113 (0.18)	0.114 (0.18)
F-Value		12.69***	12.14***	12.34***	11.62***	3.03***	2.83***
Adj. R-square		36.49%	36.68%	42.96%	42.82%	23.83%	23.07%
Highest VIF		2.55	2.56	2.71	2.72	2.37	2.38
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Close_Underpricing). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 27. Remediation: OLS regression results of underpricing using opening price and including overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.211*** (-3.29)	-0.208*** (-3.24)	-0.395*** (-4.55)	-0.389*** (-4.47)	0.024 (0.24)	0.021 (0.21)
Remediation	?	-0.007 (-1.21)		-0.004 (-0.59)		-0.016 (-1.43)	
Remediation_Only	?		-0.011 (-1.49)		-0.008 (-0.97)		-0.013 (-0.98)
RESTATE *Remediation	?		-0.002 (-0.21)		0.002 (0.21)		-0.021 (-1.30)
RESTATE *HProb(ICW)	?	-0.040 (-1.04)	-0.040 (-1.04)	-0.053 (-1.21)	-0.053 (-1.23)	-0.014 (-0.17)	-0.013 (-0.15)
RESTATE *LProb(ICW)	?	-0.051* (-1.72)	-0.051* (-1.73)	-0.056 (-1.51)	-0.056 (-1.52)	-0.039 (-0.76)	-0.038 (-0.75)
Prob(ICW)	+	0.035 (0.44)	0.025 (0.31)	0.162* (1.59)	0.153* (1.49)	-0.139 (-1.07)	-0.129 (-0.97)
LN(MV)	+	0.028*** (3.09)	0.027*** (3.02)	0.061*** (4.33)	0.060*** (4.27)	0.012 (0.91)	0.013 (0.94)
LN(Age)	-	0.010 (1.44)	0.010 (1.42)	0.024 (2.53)	0.024 (2.46)	-0.003 (-0.34)	-0.004 (-0.38)
HighTech	+	-0.017 (-1.33)	-0.018 (-1.38)	-0.029 (-2.04)	-0.029 (-2.01)	0.009 (0.31)	0.011 (0.38)
NASDAQ	+	0.049*** (3.28)	0.049*** (3.29)				
UW	-	-0.001 (-0.21)	-0.001 (-0.18)	-0.001 (-0.12)	-0.001 (-0.10)	-0.013 (-1.27)	-0.013 (-1.26)
Big4	-	0.004 (0.30)	0.004 (0.27)	0.005 (0.27)	0.004 (0.20)	0.039 (1.36)	0.039 (1.37)
RiskFactors	+	0.000 (0.21)	0.000 (0.24)	0.000 (0.27)	0.000 (0.29)	0.001 (0.78)	0.001 (0.76)
GC	-	0.003 (0.09)	0.004 (0.13)	-0.006 (-0.18)	-0.002 (-0.07)	0.055 (0.61)	0.063 (0.68)
Insider Selling	+	0.015 (0.65)	0.015 (0.64)	-0.016 (-0.40)	-0.021 (-0.51)	0.028 (0.89)	0.026 (0.82)
Retained	-	0.107 (2.14)	0.109 (2.18)	0.080 (1.01)	0.081 (1.03)	0.099 (1.34)	0.099 (1.33)
PR	+	0.491*** (10.67)	0.494*** (10.70)	0.430*** (7.74)	0.435*** (7.78)	0.483*** (4.79)	0.479*** (4.72)
VarMR	?	137.238 (1.19)	135.901 (1.18)	121.002 (0.91)	119.775 (0.90)	-73.632 (-0.30)	-75.083 (-0.30)
MR	+	0.410** (1.79)	0.411** (1.79)	0.529** (2.08)	0.530** (2.08)	-0.327 (-0.60)	-0.328 (-0.60)
F-Value		13.59***	12.87***	13.47***	12.70***	2.81***	2.63***
Adj. R-square		38.22%	38.18%	45.29%	45.23%	21.75%	21.04%
Highest VIF		2.55	2.56	2.71	2.72	2.37	2.38
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Open_Underpricing). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 28. Remediation: OLS regression results of underpricing amount using closing price and including overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.005 (0.30)	0.006 (0.33)	-0.014 (-0.59)	-0.013 (-0.56)	0.041 (1.50)	0.040 (1.45)
Remediation	?	-0.002 (-1.43)		-0.002 (-1.06)		-0.003 (-1.09)	
Remediation_Only	?		-0.003 (-1.57)		-0.003 (-1.11)		-0.002 (-0.62)
RESTATE *Remediation	?		-0.001 (-0.50)		-0.001 (-0.43)		-0.005 (-1.16)
RESTATE *HProb(ICW)	?	-0.008 (-0.80)	-0.008 (-0.79)	-0.010 (-0.86)	-0.010 (-0.86)	-0.002 (-0.08)	-0.001 (-0.06)
RESTATE *LProb(ICW)	?	-0.007 (-0.83)	-0.007 (-0.84)	-0.002 (-0.17)	-0.002 (-0.18)	-0.017 (-1.19)	-0.016 (-1.18)
Prob(ICW)	+	0.016 (0.72)	0.014 (0.61)	0.033 (1.18)	0.032 (1.12)	-0.019 (-0.53)	-0.015 (-0.42)
LN(MV)	+	0.007*** (2.70)	0.007*** (2.65)	0.014*** (3.69)	0.014*** (3.66)	0.002 (0.53)	0.002 (0.57)
LN(Age)	-	0.001 (0.68)	0.001 (0.67)	0.004 (1.50)	0.004 (1.47)	-0.001 (-0.29)	-0.001 (-0.35)
HighTech	+	-0.006 (-1.60)	-0.006 (-1.63)	-0.008 (-1.92)	-0.008 (-1.90)	-0.003 (-0.35)	-0.002 (-0.26)
NASDAQ	+	0.016*** (3.86)	0.016*** (3.86)				
UW	-	-0.000 (-0.19)	-0.000 (-0.17)	-0.000 (-0.07)	-0.000 (-0.06)	-0.003 (-0.88)	-0.003 (-0.88)
Big4	-	-0.009** (-2.22)	-0.009** (-2.23)	-0.008* (-1.55)	-0.008* (-1.58)	-0.002 (-0.23)	-0.002 (-0.21)
RiskFactors	+	-0.000 (-1.27)	-0.000 (-1.25)	-0.000 (-1.27)	-0.000 (-1.26)	0.000 (0.20)	0.000 (0.18)
GC	-	-0.001 (-0.14)	-0.001 (-0.11)	-0.002 (-0.16)	-0.001 (-0.11)	0.015 (0.58)	0.017 (0.68)
Insider Selling	+	0.008* (1.29)	0.008 (1.27)	0.011 (1.00)	0.011 (0.93)	-0.001 (-0.09)	-0.001 (-0.17)
Retained	-	-0.031** (-2.22)	-0.030** (-2.18)	-0.060*** (-2.74)	-0.060*** (-2.73)	-0.000 (-0.01)	-0.000 (-0.02)
PR	+	0.108*** (8.47)	0.109*** (8.49)	0.085*** (5.52)	0.086*** (5.52)	0.139*** (5.00)	0.137*** (4.91)
VarMR	?	49.003 (1.53)	48.714 (1.52)	70.118* (1.91)	69.953* (1.90)	-75.029 (-1.10)	75.545 (-1.10)
MR	+	0.122** (1.92)	0.123** (1.93)	0.145** (2.05)	0.145** (2.05)	-0.093 (-0.62)	-0.093 (-0.62)
F-Value		8.86***	8.38***	8.82***	8.28***	2.18**	2.05**
Adj. R-square		27.87%	27.75%	34.17%	33.93%	15.35%	14.71%
Highest VIF		2.55	2.56	2.71	2.72	2.37	2.38
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Close_Money). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 29. Remediation: OLS regression results of underpricing amount using opening price and including overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.007 (0.51)	0.007 (0.53)	-0.015 (-0.78)	-0.014 (-0.74)	0.031 (1.53)	0.030 (1.49)
Remediation	?	-0.001 (-0.60)		0.000 (0.290		-0.004* (-1.90)	
Remediation_Only	?		-0.001 (-0.75)		0.000 (0.02)		-0.004 (-1.33)
RESTATE *Remediation	?		-0.000 (-0.09)		0.001 (0.46)		-0.006* (-1.68)
RESTATE *HProb(ICW)	?	0.001 (0.22)	0.002 (0.21)	-0.004 (-0.45)	-0.004 (-0.46)	0.023 (1.38)	0.024 (1.38)
RESTATE *LProb(ICW)	?	-0.013** (-2.06)	-0.013** (-2.06)	-0.015* (-1.83)	-0.015* (-1.83)	-0.012 (-1.20)	-0.012 (-1.18)
Prob(ICW)	+	0.009 (0.54)	0.008 (0.47)	0.031* (1.36)	0.030* (1.31)	-0.019 (-0.71)	-0.016 (-0.61)
LN(MV)	+	0.003** (1.77)	0.003** (1.74)	0.010*** (3.09)	0.010*** (3.06)	0.001 (0.25)	0.001 (0.28)
LN(Age)	-	0.003 (1.37)	0.002 (1.35)	0.004 (2.05)	0.004 (2.02)	-0.000 (-0.12)	-0.000 (-0.17)
HighTech	+	-0.005 (-1.89)	-0.005 (-1.91)	-0.006 (-1.99)	-0.006 (-1.97)	-0.007 (-1.07)	-0.006 (-0.97)
NASDAQ	+	0.011*** (3.27)	0.011*** (3.27)				
UW	-	0.000 (0.09)	0.000 (0.10)	0.000 (0.00)	0.000 (0.02)	-0.001 (-0.47)	-0.001 (-0.46)
Big4	-	-0.001 (-0.44)	-0.001 (-0.45)	-0.001 (-0.28)	-0.001 (-0.31)	0.006 (1.06)	0.006 (1.07)
RiskFactors	+	-0.000 (-1.38)	-0.000 (-1.37)	-0.000 (-0.92)	-0.000 (-0.91)	-0.000 (-0.24)	-0.000 (-0.26)
GC	-	-0.002 (-0.29)	-0.002 (-0.27)	-0.003 (-0.38)	-0.003 (-0.33)	0.020 (1.11)	0.022 (1.19)
Insider Selling	+	0.006 (1.11)	0.006 (1.11)	0.001 (0.07)	0.000 (0.02)	0.004 (0.61)	0.004 (0.54)
Retained	-	-0.015* (-1.41)	-0.015* (-1.39)	-0.037** (-2.11)	-0.037** (-2.10)	0.004 (0.25)	0.004 (0.24)
PR	+	0.106*** (10.69)	0.107*** (10.68)	0.091*** (7.41)	0.092*** (7.39)	0.127*** (6.23)	0.126*** (6.14)
VarMR	?	7.435 (0.30)	7.286 (0.29)	25.724 (0.88)	25.607 (0.87)	-100.378** (-2.00)	-100.728** (-2.00)
MR	+	0.056 (1.13)	0.056 (1.13)	0.075* (1.32)	0.075* (1.32)	-0.126 (-1.14)	-0.126 (-1.14)
F-Value		11.11***	10.48***	9.95***	9.33***	3.56***	3.34***
Adj. R-square		33.19%	33.03%	37.26%	37.02%	28.23%	27.64%
Highest VIF		2.55	2.56	2.71	2.72	2.37	2.38
N		347	347	242	242	105	105

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Open_Money). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 30. Remediation: OLS regression results of underpricing using closing price and excluding overpricing

		Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
	Exp.	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
Variable	sign	(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.277*** (-3.62)	-0.265*** (-3.47)	-0.450*** (-4.29)	-0.433*** (-4.13)	-0.006 (-0.05)	-0.006 (-0.05)
Remediation	?	-0.027** (-2.35)		-0.013 (-1.56)		-0.014 (-1.09)	
Remediation_Only	?		-0.024*** (2.95)		-0.023** (-2.25)		-0.014 (-0.94)
RESTATE *Remediation	?		-0.003 (-0.27)		0.003 (0.22)		-0.015 (-0.73)
RESTATE *HProb(ICW)	?	-0.024 (-0.53)	-0.025 (-0.55)	-0.031 (-0.51)	-0.031 (-0.51)	-0.043 (-0.58)	-0.043 (-0.58)
RESTATE *LProb(ICW)	?	0.025 (0.60)	0.023 (0.56)	0.007 (0.15)	0.004 (0.09)	0.129 (1.45)	0.129 (1.44)
Prob(ICW)	+	0.044 (0.50)	0.018 (0.20)	0.129 (1.12)	0.102 (0.88)	-0.136 (-0.96)	-0.135 (-0.93)
LN(MV)	+	0.040*** (3.70)	0.038*** (3.50)	0.083*** (4.66)	0.080*** (4.51)	0.021* (1.28)	0.021 (1.26)
LN(Age)	-	0.013 (1.48)	0.012 (1.48)	0.026 (2.26)	0.026 (2.21)	0.003 (0.20)	0.003 (0.19)
HighTech	+	-0.007 (-0.42)	-0.009 (-0.59)	-0.029 (-1.64)	-0.031 (-1.72)	0.069** (1.88)	0.069** (1.84)
NASDAQ	+	0.071*** (3.97)	0.072*** (4.02)				
UW	-	0.002 (0.37)	0.003 (0.42)	0.004 (0.54)	0.004 (0.60)	-0.009 (-0.77)	-0.009 (-0.76)
Big4	-	-0.033** (-1.83)	-0.033** (-1.86)	-0.020 (-0.95)	-0.023 (-1.07)	-0.027 (-0.77)	-0.027 (-0.76)
RiskFactors	+	-0.001 (-1.10)	-0.001 (-1.00)	-0.001 (-0.87)	-0.001 (-0.79)	-0.000 (-0.22)	-0.000 (-0.22)
GC	-	0.045 (0.94)	0.047 (0.98)	0.031 (0.56)	0.045 (0.81)	-0.016 (-0.16)	-0.016 (-0.16)
Insider Selling	+	0.017 (0.62)	0.017 (0.63)	-0.016 (-0.32)	-0.025 (-0.50)	0.003 (0.07)	0.002 (0.06)
Retained	-	0.178 (2.71)	0.179 (2.74)	0.073 (0.73)	0.076 (0.77)	0.168 (1.60)	0.168 (1.58)
PR	+	0.469*** (8.14)	0.480*** (8.33)	0.365*** (5.08)	0.380*** (5.27)	0.499*** (4.11)	0.499*** (4.05)
VarMR	?	253.447* (1.77)	255.317* (1.79)	304.163* (1.84)	308.451* (1.87)	-130.735 (-0.43)	-130.811 (-0.43)
MR	+	0.272 (0.96)	0.269 (0.96)	0.342 (1.09)	0.337 (1.08)	-0.234 (-0.36)	-0.234 (-0.36)
F-Value		11.47***	11.10***	10.12***	9.80***	3.42***	3.17***
Adj. R-square		39.11%	39.63%	43.31%	43.93%	31.30%	30.29%
Highest VIF		2.51	2.54	2.76	2.78	2.70	2.75
N		278	278	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Close_Underpricing). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 31. Remediation: OLS regression results of underpricing using opening price and excluding overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		-0.218*** (-3.26)	-0.214*** (-3.19)	-0.386*** (-4.27)	-0.373*** (-4.13)	0.005 (0.04)	0.001 (0.01)
Remediation	?	-0.011* (-1.78)		-0.007 (-0.95)		-0.022* (-1.86)	
Remediation_Only	?		-0.015** (-2.08)		-0.014 (-1.56)		-0.018 (-1.30)
RESTATE *Remediation	?		-0.004 (-0.46)		0.004 (0.34)		-0.029 (-1.63)
RESTATE *HProb(ICW)	?	-0.031 (-0.79)	-0.031 (-0.79)	-0.034 (-0.71)	-0.036 (-0.76)	-0.036 (-0.51)	-0.035 (-0.49)
RESTATE *LProb(ICW)	?	-0.046 (-1.31)	-0.046 (-1.32)	-0.034 (-0.78)	-0.036 (-0.81)	-0.052 (-0.89)	-0.052 (-0.88)
Prob(ICW)	+	0.035 (0.44)	0.022 (0.28)	0.171** (1.67)	0.156* (1.51)	-0.130 (-0.97)	-0.119 (-0.87)
LN(MV)	+	0.032*** (3.36)	0.031*** (3.29)	0.061*** (4.13)	0.060*** (4.05)	0.020* (1.31)	0.020* (1.34)
LN(Age)	-	0.014 (1.96)	0.014 (1.94)	0.029 (2.89)	0.028 (2.80)	-0.002 (-0.21)	-0.003 (-0.26)
HighTech	+	-0.020 (-1.50)	-0.021 (-1.56)	-0.027 (-1.82)	-0.027 (-1.79)	-0.002 (-0.06)	0.001 (0.02)
NASDAQ	+	0.052*** (3.33)	0.052*** (3.35)				
UW	-	-0.002 (-0.37)	-0.002 (-0.36)	0.001 (0.10)	0.001 (0.12)	-0.015* (-1.42)	-0.015* (-1.42)
Big4	-	0.001 (0.04)	-0.000 (-0.01)	-0.004 (-0.20)	-0.006 (-0.33)	0.040 (1.30)	0.040 (1.31)
RiskFactors	+	-0.000 (-0.09)	-0.000 (-0.05)	0.000 (0.20)	0.000 (0.26)	0.000 (0.23)	0.000 (0.22)
GC	-	0.039 (0.96)	0.040 (0.99)	0.031 (0.67)	0.039 (0.84)	0.058 (0.62)	0.067 (0.70)
Insider Selling	+	0.015 (0.60)	0.014 (0.59)	-0.026 (-0.62)	-0.034 (-0.80)	0.035 (1.03)	0.032 (0.94)
Retained	-	0.108 (1.94)	0.111 (1.99)	0.055 (0.62)	0.055 (0.63)	0.116 (1.35)	0.115 (1.33)
PR	+	0.470*** (9.48)	0.475*** (9.54)	0.436*** (7.40)	0.446*** (7.52)	0.407*** (3.48)	0.401*** (3.39)
VarMR	?	149.097 (1.22)	145.466 (1.19)	115.587 (0.82)	111.853 (0.79)	70.802 (0.26)	73.393 (0.27)
MR	+	0.370* (1.53)	0.366* (1.51)	0.418* (1.55)	0.409* (1.52)	-0.082 (-0.14)	-0.071 (-0.12)
F-Value		12.07***	11.47***	11.95***	11.41***	2.28***	2.14**
Adj. R-square		37.78%	37.82%	44.79%	45.03%	18.07%	17.26%
Highest VIF		2.53	2.54	2.64	2.65	2.63	2.65
N		311	311	217	217	94	94

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Underpricing). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Open_Underpricing). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 32. Remediation: OLS regression results of underpricing amount using closing price and excluding overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.027* (1.69)	0.029* (1.85)	0.005 (0.21)	0.008 (0.40)	0.072*** (2.93)	0.072*** (2.87)
Remediation	?	-0.004** (-2.53)		-0.002 (-1.25)		-0.006** (-2.13)	
Remediation_Only	?		-0.005*** (-3.09)		-0.004** (-2.08)		-0.006* (-1.84)
RESTATE *Remediation	?		-0.001 (-0.41)		0.001 (0.56)		-0.006 (-1.42)
RESTATE *HProb(ICW)	?	-0.005 (-0.57)	-0.006 (-0.59)	-0.003 (-0.26)	-0.003 (-0.26)	-0.017 (-1.11)	-0.017 (-1.10)
RESTATE *LProb(ICW)	?	0.001 (0.09)	0.000 (0.05)	-0.001 (-0.13)	-0.002 (-0.20)	0.016 (0.86)	0.016 (0.85)
Prob(ICW)	+	0.011 (0.63)	0.006 (0.34)	0.019 (0.82)	0.013 (0.57)	-0.015 (-0.49)	-0.015 (-0.48)
LN(MV)	+	0.007*** (3.26)	0.007*** (3.06)	0.014*** (3.89)	0.014*** (3.73)	0.005* (1.60)	0.005* (1.57)
LN(Age)	-	0.004 (2.07)	0.004 (2.07)	0.005 (2.29)	0.005 (2.24)	0.003 (1.17)	0.003 (1.16)
HighTech	+	-0.003 (-0.88)	-0.003 (-1.05)	-0.006 (-1.76)	-0.007 (-1.85)	0.007 (0.86)	0.007 (0.85)
NASDAQ	+	0.017*** (4.65)	0.017*** (4.70)				
UW	-	0.001 (0.44)	0.001 (0.48)	0.001 (0.91)	0.002 (0.98)	-0.003 (-1.11)	-0.003 (-1.10)
Big4	-	-0.009*** (-2.49)	-0.009*** (-2.51)	-0.007* (-1.63)	-0.008** (-1.76)	-0.008 (-1.01)	-0.008 (-1.00)
RiskFactors	+	-0.001 (-2.88)	-0.000 (-2.78)	-0.001 (-2.34)	-0.001 (-2.27)	-0.000 (-1.12)	-0.000 (-1.11)
GC	-	0.010 (1.04)	0.011 (1.09)	0.010 (0.93)	0.014 (1.20)	0.001 (0.06)	0.001 (0.06)
Insider Selling	+	0.006 (0.99)	0.006 (1.00)	-0.001 (-0.06)	-0.003 (-0.26)	0.004 (0.49)	0.004 (0.48)
Retained	-	-0.055*** (-4.08)	-0.055*** (-4.07)	-0.078*** (-3.84)	-0.077*** (-3.82)	-0.054*** (-2.44)	-0.054*** (-2.41)
PR	+	0.091*** (7.65)	0.093*** (7.83)	0.072*** (4.91)	0.075*** (5.14)	0.108*** (4.21)	0.108*** (4.15)
VarMR	?	42.690 (1.45)	43.070 (1.47)	71.006** (2.10)	71.968** (2.14)	-70.879 (-1.10)	-70.880 (-1.09)
MR	+	0.028 (0.49)	0.028 (0.48)	0.023 (0.36)	0.022 (0.34)	-0.034 (-0.25)	-0.034 (-0.25)
F-Value		8.49***	8.26***	7.83***	7.68***	2.49***	2.31***
Adj. R-square		31.50%	32.06%	36.38%	37.29%	21.89%	20.74%
Highest VIF		2.51	2.54	2.76	2.78	2.70	2.75
N		278	278	192	192	86	86

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Money). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Close_Money). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 33. Remediation: OLS regression results of underpricing amount using opening price and excluding overpricing

Variable	Exp. sign	Full sample		NASDAQ		NYSE & AMEX	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		0.012 (0.84)	0.012 (0.88)	-0.006 (-0.33)	-0.004 (-0.22)	0.034* (1.68)	0.033 (1.63)
Remediation	?	-0.002 (-1.50)		-0.000 (-0.12)		-0.006*** (-2.80)	
Remediation_Only	?		-0.002 (-1.64)		-0.001 (-0.74)		-0.006** (-2.06)
RESTATE *Remediation	?		-0.001 (-0.53)		0.002 (0.74)		-0.008** (-2.33)
RESTATE *HProb(ICW)	?	0.001 (0.08)	0.006 (0.07)	-0.004 (-0.38)	-0.004 (-0.42)	0.007 (0.51)	0.007 (0.52)
RESTATE *LProb(ICW)	?	-0.001 (-1.54)	-0.011 (-1.55)	-0.007 (-0.73)	-0.007 (-0.75)	-0.017 (-1.53)	-0.017 (-1.52)
Prob(ICW)	+	0.010 (0.62)	0.009 (0.51)	0.032* (1.47)	0.029* (1.34)	-0.013 (-0.51)	-0.011 (-0.41)
LN(MV)	+	0.005*** (2.34)	0.005** (2.29)	0.010*** (3.06)	0.009*** (2.99)	0.003 (1.13)	0.003 (1.17)
LN(Age)	-	0.004 (2.38)	0.004 (2.37)	0.006 (2.63)	0.005 (2.55)	0.001 (0.63)	0.001 (0.55)
HighTech	+	-0.006 (-2.05)	-0.006 (-2.09)	-0.006 (-1.77)	-0.006 (-1.75)	-0.009 (-1.46)	-0.008 (-1.34)
NASDAQ	+	0.012*** (3.73)	0.012*** (3.74)				
UW	-	0.000 (0.05)	0.000 (0.06)	0.000 (0.32)	0.000 (0.34)	-0.002 (-0.85)	-0.002 (-0.85)
Big4	-	-0.003 (-0.83)	-0.003 (-0.85)	-0.004 (-0.93)	-0.004 (-1.03)	0.005 (0.90)	0.005 (0.91)
RiskFactors	+	-0.002 (-1.36)	-0.000 (-1.33)	-0.000 (-0.11)	-0.000 (-0.06)	-0.000 (-1.03)	-0.000 (-1.04)
GC	-	0.009 (1.11)	0.009 (1.12)	0.010 (1.00)	0.011 (1.13)	0.021 (1.16)	0.023 (1.24)
Insider Selling	+	0.005 (1.03)	0.005 (1.02)	-0.003 (-0.31)	-0.004 (-0.47)	0.006 (0.96)	0.006 (0.86)
Retained	-	-0.031*** (-2.68)	-0.030*** (-2.64)	-0.058*** (-3.09)	-0.058*** (-3.09)	-0.012 (-0.74)	-0.013 (-0.75)
PR	+	0.101*** (9.87)	0.102*** (9.88)	0.093*** (7.45)	0.095*** (7.54)	0.109*** (4.84)	0.108*** (4.72)
VarMR	?	3.890 (0.15)	3.398 (0.13)	7.213 (0.24)	6.559 (0.22)	-44.747 (-0.85)	-44.179 (-0.83)
MR	+	0.049 (0.98)	0.048 (0.96)	0.036 (0.63)	0.034 (0.60)	-0.009 (-0.08)	-0.007 (-0.06)
F-Value		10.46***	9.89***	9.44***	8.97***	2.91***	2.73***
Adj. R-square		34.16%	34.05%	38.47%	38.56%	24.71%	24.04%
Highest VIF		2.53	2.54	2.64	2.65	2.63	2.65
N		311	311	217	217	94	94

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Open_Money). Remediation is coded 2, if the IPO firm explicitly discloses that it has completely remediated the identified internal control weakness in the prospectus; 1, if the IPO firm is undertaking remediation procedures as of the IPO date; 0, if the IPO firm has not undertaken any remediation procedures as of the IPO date.

[b] Dependent variable is LN(Open_Money). Remediation_Only is the same as Remediation except that it excludes firms that disclosed restatements attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

To sum up, while I find a negative association between the voluntary disclosure of ICW over pre-IPO financial reporting and underpricing, most of the results are not statistically significant for the full sample including overpricing. I find that VICW and RESTATE*VICW variables are marginally and negatively associated with LN(Open_Money) for NYSE & AMEX sample. I also find that Specificity and Remediation_Only variables are marginally and negatively associated with LN(Close_Underpricing) for the full sample including all exchanges and that Remediation and RESTATE*Remediation variables are marginally and negatively associated with LN(Open_Money) for NYSE & AMEX sample. When I exclude IPO firms with overpricing, I consistently find a strong negative association between the voluntary disclosure of ICW and underpricing. Overall, there is only some support for Hypotheses 5 to 8 related to underpricing.

7.2.4 Additional Analysis

7.2.4.1 The Effect of Net Income Change by Restatements on Underpricing

According to Palmrose *et al.* (2004), income decreasing restatements elicit a more severe market reaction compared to income increasing restatements. However, as mentioned previously, accounting restatements by IPO firms before going public may provide new investors with a favorable signal of trying to meet higher quality financial reporting as a new public company (Ball and Shivakumar 2008). Therefore, it is an interesting and open question how accounting restatements by IPO firms on previously reported net income affect underpricing.

Table 34 reports the OLS regression results. According to the results, the income increasing accounting restatement is negatively correlated with underpricing, suggesting that income increasing restatement reduces information asymmetry between issuing firms and new investors. Even if IPO firms before going public are explicitly allowed to restate previously reported financial statements under APB 20, income decreasing restatement causes a greater underpricing.

7.2.4.2 The Effect of Company Level Material Weaknesses on Underpricing

Moody's report classifies material weaknesses into two types: (1) transaction-level weaknesses, and (2) company-level weaknesses (Doss and Jonas 2004). Transaction-level material weaknesses relate to specific accounts such as ineffective controls for revenue recognition processes and inadequate documentation on accounts receivable ledgers and company-level material weaknesses relate to ineffective control environment such as the "tone" set by management and internal control weaknesses in

financial reporting process. While the auditor can audit around transaction-level material weaknesses, they cannot do so when company-level material weaknesses are present because company-level material weaknesses result from more macro-level monitoring problems. Doyle *et al*. (2007a) report that firms with company-level material weaknesses have lower accruals quality. In this dissertation, I investigate the association between voluntary disclosure of company-level material weaknesses and underpricing. Tables 35 and 36 report the OLS regression results. None of the variables of interest is significant.

7.2.4.3 The Effect of Staffing and Complexity Weaknesses of ICWs on underpricing

Next, I investigate the relationship between a specific material weakness (e.g., staffing or complexity accounting) and underpricing. Tables 37 to 40 report the OLS regression results. I do not find a significant association between voluntary disclosure of staffing weakness and underpricing. According to the second column in Table 39, however, Complexity_Only variable is negative and significant at the 5 percent level for the full sample using LN(Close_Underpricing) as the dependent variable. The fourth column in Table 39 shows that Complexity_Only variable is negatively and significantly associated with LN(Close_Money) at the 10 percent level. Additionally, Table 40 provides empirical results for the IPO sample firms after excluding overpricing. Complexity variable is negatively and significantly correlated with LN(Close_Underpricing) at the 10 percent level only in one of the models (first column).

Table 34. Net income change effect: OLS regression results

Variables	Exp. sign	Full sample including overpricing		Full sample excluding overpricing	
		Model 1 [a]	Model 2 [b]	Model 1 [a]	Model 2 [b]
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.246*** (-3.73)	0.010 (0.66)	-0.258*** (-3.94)	0.031** (2.26)
NI_Change	?	-0.012** (-2.06)	-0.003* (-1.91)	-0.009* (-1.78)	-0.002* (-1.77)
LN(MV)	+	0.035*** (3.45)	0.006*** (2.47)	0.037*** (3.56)	0.006*** (2.93)
LN(Age)	-	0.006 (0.76)	0.001 (0.52)	0.010 (1.25)	0.003 (1.90)
HighTech	+	-0.013 (-0.88)	-0.003 (-1.37)	-0.009 (-0.56)	-0.003 (-0.83)
NASDAQ	+	0.065*** (3.64)	0.015*** (3.68)	0.069*** (3.94)	0.016*** (4.45)
UW	-	-0.001 (-0.21)	-0.000 (-0.30)	-0.001 (-0.10)	0.000 (0.14)
Big4	-	-0.017 (-0.95)	-0.008** (-1.95)	-0.018 (-1.03)	-0.007** (-1.82)
RiskFactors	+	0.000 (0.52)	-0.000 (-0.99)	-0.000 (-0.39)	-0.000 (-2.32)
GC	-	-0.016 (-0.41)	-0.003 (-0.35)	0.025 (0.55)	0.006 (0.64)
Insider Selling	+	0.020 (0.72)	0.007 (1.08)	0.012 (0.44)	0.004 (0.71)
Retained	-	0.098 (1.68)	-0.029** (-2.12)	0.174 (2.76)	-0.054*** (-4.10)
PR	+	0.497*** (9.16)	0.104*** (8.19)	0.450*** (8.02)	0.088*** (7.49)
VarMR	?	293.125** (2.14)	42.510 (1.32)	207.858 (1.50)	30.909 (1.06)
MR	+	0.599** (2.20)	0.095* (1.50)	0.093 (0.34)	-0.005 (-0.08)
F-Value		14.18***	9.83***	12.56***	9.15***
Adj. R-square		35.46%	26.90%	37.56%	29.79%
Highest VIF		2.35	2.35	2.35	2.35
N		337	337	270	270

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). NI_Change is computed by (Net income after accounting restatement – Net income before accounting restatement) divided by absolute value of net income before accounting restatement, where Net income represents aggregate net income during a period affected by accounting restatement.

[b] Dependent variable is LN(Close_Money). NI_Change is computed by (Net income after accounting restatement – Net income before accounting restatement) divided by absolute value of net income before accounting restatement, where Net income represents aggregate net income

during a period affected by accounting restatement.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 35. Company_Level: OLS regression results including overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.260*** (-3.31)	-0.257*** (-3.25)	0.007 (0.39)	0.008 (0.45)
Company_Level	?	-0.005 (-0.28)		-0.001 (-0.26)	
Complany_Level_Only	?		-0.015 (-0.62)		-0.004 (-0.73)
RESTATE*Company_Level	?		0.007 (0.26)		0.003 (0.43)
RESTATE*HProb(ICW)	?	-0.074 (-1.60)	-0.074 (-1.60)	-0.007 (-0.69)	-0.007 (-0.69)
RESTATE*LProb(ICW)	?	-0.017 (-0.47)	-0.017 (-0.47)	-0.006 (-0.71)	-0.006 (-0.72)
Prob(ICW)	?	0.058 (0.61)	0.051 (0.53)	0.012 (0.56)	0.010 (0.45)
LN(MV)	+	0.039*** (3.58)	0.039*** (3.54)	0.007*** (2.66)	0.007*** (2.62)
LN(Age)	-	0.008 (0.93)	0.008 (0.90)	0.001 (0.65)	0.001 (0.60)
HighTech	+	-0.018 (-1.15)	-0.019 (-1.17)	-0.006 (-1.58)	-0.006 (-1.60)
NASDAQ	+	0.075*** (3.99)	0.074*** (3.96)	0.017*** (3.94)	0.017*** (3.91)
UW	-	-0.002 (-0.24)	-0.002 (-0.25)	-0.000 (-0.34)	-0.000 (-0.35)
Big4	-	-0.020 (-1.10)	-0.021 (-1.10)	-0.009** (-2.11)	-0.009** (-2.11)
RiskFactors	+	0.000 (0.30)	0.000 (0.31)	-0.000 (-1.17)	-0.000 (-1.15)
GC	-	-0.016 (-0.39)	-0.015 (-0.35)	-0.003 (-0.36)	-0.003 (-0.30)
Insider Selling	+	0.023 (0.79)	0.022 (0.74)	0.008 (1.23)	0.008 (1.18)
Retained	-	0.069 (1.13)	0.071 (1.15)	-0.035*** (-2.44)	-0.034*** (-2.40)
PR	+	0.528*** (9.16)	0.528*** (9.16)	0.108*** (8.10)	0.108*** (8.10)
VarMR	?	342.434** (2.41)	338.734** (2.38)	54.895* (1.67)	53.757 (1.63)
MR	+	0.811*** (2.86)	0.814*** (2.87)	0.134** (2.04)	0.135** (2.05)
F-Value		12.27***	11.59***	8.39***	7.96***
Adj. R-square		36.95%	36.83%	27.77%	27.70%
Highest VIF		2.51	2.52	2.51	2.52
N		328	328	328	328

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Company_Level is coded 1 if the IPO firm discloses a company-level material weakness in the prospectus. Company_Level_Only is coded 1 if the IPO firm discloses a company-level material weakness, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Company_Level is coded 1 if the IPO firm discloses a company-level material weakness in the prospectus. Company_Level_Only is coded 1 if the IPO firm discloses a company-level material weakness, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 36. Company_Level: OLS regression results excluding overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.266*** (-3.37)	-0.263*** (-3.32)	0.030* (1.83)	0.031* (1.88)
Company_Level	?	-0.005 (-0.25)		-0.002 (-0.42)	
Complany_Level_Only	?		-0.014 (-0.56)		-0.004 (-0.82)
RESTATE*Company_Level	?		0.007 (-0.24)		0.001 (0.26)
RESTATE*HProb(ICW)	?	-0.019 (-0.41)	-0.019 (-0.41)	-0.004 (-0.44)	-0.004 (-0.45)
RESTATE*LProb(ICW)	?	0.031 (0.75)	0.031 (0.74)	0.002 (0.27)	0.002 (0.26)
Prob(ICW)	?	0.021 (0.24)	0.014 (0.16)	0.007 (0.40)	0.005 (0.29)
LN(MV)	+	0.040*** (3.60)	0.040*** (3.53)	0.007*** (3.04)	0.007*** (2.95)
LN(Age)	-	0.013 (1.45)	0.012 (1.42)	0.004 (2.08)	0.004 (2.04)
HighTech	+	-0.007 (-0.42)	-0.008 (-0.45)	-0.003 (-0.73)	-0.003 (-0.77)
NASDAQ	+	0.078*** (4.17)	0.077*** (4.14)	0.18*** (4.57)	0.018*** (4.54)
UW	-	0.001 (0.16)	0.001 (0.17)	0.000 (0.30)	0.000 (0.31)
Big4	-	-0.029* (-1.48)	-0.029* (-1.48)	-0.009** (-2.18)	-0.009** (-2.17)
RiskFactors	+	-0.001 (-0.88)	-0.001 (-0.84)	-0.000 (-2.61)	-0.000 (-2.57)
GC	-	0.029 (0.57)	0.031 (0.60)	0.008 (0.74)	0.008 (0.78)
Insider Selling	+	0.013 (0.45)	0.013 (0.45)	0.005 (0.83)	0.005 (0.83)
Retained	-	0.148 (2.17)	0.151 (2.20)	-0.061*** (-4.32)	-0.060*** (-4.27)
PR	+	0.461*** (7.61)	0.463*** (7.62)	0.090*** (7.19)	0.091*** (7.21)
VarMR	?	260.072* (1.75)	256.765* (1.73)	45.771 (1.49)	44.859 (1.46)
MR	+	0.299 (1.02)	0.298 (1.02)	0.035 (0.58)	0.035 (0.58)
F-Value		10.42***	9.84***	7.59***	7.20***
Adj. R-square		38.21%	38.04%	30.21%	30.10%
Highest VIF		2.46	2.48	2.46	2.48
N		260	260	260	260

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Company_Level is coded 1 if the IPO firm discloses a company-level material weakness in the prospectus. Company_Level_Only is coded 1 if the IPO firm discloses a company-level material weakness, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Company_Level is coded 1 if the IPO firm discloses a company-level material weakness in the prospectus. Company_Level_Only is coded 1 if the IPO firm discloses a company-level material weakness, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 37. Staffing: OLS regression results including overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.261*** (-3.31)	-0.261*** (-3.32)	0.007 (0.40)	0.007 (0.39)
Staffing	?	0.009 (0.45)		0.001 (0.20)	
Staffing_Only	?		-0.009 (-0.35)		-0.004 (-0.66)
RESTATE*Staffing	?		0.032 (1.11)		0.007 (1.07)
RESTATE*HProb(ICW)	?	-0.072 (-1.55)	-0.072 (-1.56)	-0.007 (-0.65)	-0.007 (-0.66)
RESTATE*LProb(ICW)	?	-0.015 (-0.41)	-0.015 (-0.41)	-0.006 (-0.67)	-0.006 (-0.68)
Prob(ICW)	?	0.059 (0.62)	0.056 (0.59)	0.012 (0.55)	0.011 (0.52)
LN(MV)	+	0.039*** (3.57)	0.039*** (3.59)	0.007*** (2.65)	0.007*** (2.67)
LN(Age)	-	0.008 (0.92)	0.007 (0.88)	0.001 (0.65)	0.001 (0.59)
HighTech	+	-0.019 (-1.20)	-0.019 (-1.22)	-0.006 (-1.61)	-0.006 (-1.64)
NASDAQ	+	0.075*** (3.98)	0.074*** (3.92)	0.017*** (3.94)	0.017*** (3.87)
UW	-	-0.002 (-0.26)	-0.002 (-0.29)	-0.001 (-0.35)	-0.001 (-0.39)
Big4	-	-0.020 (-1.09)	-0.020 (-1.10)	-0.009** (-2.11)	-0.009** (-2.12)
RiskFactors	+	0.000 (0.31)	0.000 (0.35)	-0.000 (-1.16)	-0.000 (-1.12)
GC	-	-0.020 (-0.49)	-0.017 (-0.42)	-0.004 (-0.41)	-0.003 (-0.33)
Insider Selling	+	0.021 (0.71)	0.019 (0.67)	0.008 (1.19)	0.008 (1.13)
Retained	-	0.070 (1.14)	0.074 (1.20)	-0.035*** (-2.43)	-0.034*** (-2.36)
PR	+	0.527*** (9.16)	0.528*** (9.17)	0.108*** (8.10)	0.108*** (8.11)
VarMR	?	340.803** (2.40)	335.104** (2.36)	54.626* (1.66)	53.080 (1.61)
MR	+	0.810*** (2.86)	0.826*** (2.91)	0.134** (2.04)	0.138** (2.10)
F-Value		12.29***	11.68***	8.39***	8.04***
Adj. R-square		36.98%	37.02%	27.76%	27.92%
Highest VIF		2.50	2.50	2.50	2.50
N		328	328	328	328

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Staffing is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses in the prospectus. Staffing_Only is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Staffing is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses in the prospectus. Staffing_Only is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 38. Staffing: OLS regression results excluding overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.266*** (-3.37)	-0.267*** (-3.38)	0.030* (1.85)	0.030* (1.83)
Staffing	?	0.000 (0.02)		-0.001 (-0.25)	
Staffing_Only	?		-0.017 (-0.65)		-0.005 (-0.89)
RESTATE*Staffing	?		0.022 (0.76)		0.004 (0.61)
RESTATE*HProb(ICW)	?	-0.018 (-0.39)	-0.018 (-0.39)	-0.004 (-0.43)	-0.004 (-0.43)
RESTATE*LProb(ICW)	?	0.032 (0.77)	0.031 (0.76)	0.002 (0.28)	0.002 (0.27)
Prob(ICW)	?	0.020 (0.23)	0.017 (0.19)	0.007 (0.36)	0.006 (0.33)
LN(MV)	+	0.040*** (3.59)	0.040*** (3.58)	0.007*** (3.02)	0.007*** (3.01)
LN(Age)	-	0.013 (1.44)	0.012 (1.39)	0.004 (2.08)	0.004 (2.03)
HighTech	+	-0.007 (-0.43)	-0.008 (-0.48)	-0.003 (-0.74)	-0.003 (-0.78)
NASDAQ	+	0.078*** (4.17)	0.077*** (4.13)	0.018*** (4.58)	0.017*** (4.53)
UW	-	0.001 (0.15)	0.001 (0.13)	0.000 (0.29)	0.000 (0.27)
Big4	-	-0.029* (-1.48)	-0.029* (-1.48)	-0.009** (-2.18)	-0.009** (-2.18)
RiskFactors	+	-0.001 (-0.87)	-0.001 (-0.82)	-0.000 (-2.60)	-0.000 (-2.55)
GC	-	0.027 (0.53)	0.030 (0.59)	0.008 (0.72)	0.008 (0.78)
Insider Selling	+	0.012 (0.43)	0.012 (0.43)	0.005 (0.81)	0.005 (0.81)
Retained	-	0.149 (2.18)	0.154 (2.25)	-0.061*** (-4.31)	-0.060*** (-4.23)
PR	+	0.461*** (7.59)	0.463*** (7.63)	0.090*** (7.18)	0.091*** (7.22)
VarMR	?	259.595* (1.75)	253.356* (1.71)	45.760 (1.49)	44.401 (1.44)
MR	+	0.300 (1.02)	0.307 (1.05)	0.035 (0.58)	0.037 (0.61)
F-Value		10.42***	9.90***	7.58***	7.24***
Adj. R-square		38.20%	38.23%	30.18%	30.25%
Highest VIF		2.46	2.46	2.46	2.46
N		260	260	260	260

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Staffing is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses in the prospectus. Staffing_Only is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Staffing is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses in the prospectus. Staffing_Only is coded 1 if the IPO firm discloses a staffing weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 39. Complexity: OLS regression results including overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.264*** (-3.36)	-0.255*** (-3.24)	0.007 (0.37)	0.010 (0.52)
Complexity	?	-0.042 (-1.61)		-0.006 (-0.92)	
Complexity_Only	?		-0.069** (-2.01)		-0.014* (-1.74)
RESTATE*Complexity	?		-0.008 (-0.21)		0.005 (0.54)
RESTATE*HProb(ICW)	?	-0.077* (-1.66)	-0.77* (-1.67)	-0.008 (-0.71)	-0.008 (-0.72)
RESTATE*LProb(ICW)	?	-0.019 (-0.52)	-0.019 (-0.53)	-0.006 (-0.74)	-0.006 (-0.75)
Prob(ICW)	?	0.071 (0.75)	0.055 (0.58)	0.014 (0.63)	0.009 (0.41)
LN(MV)	+	0.042*** (3.76)	0.042*** (3.76)	0.007*** (2.75)	0.007*** (2.75)
LN(Age)	-	0.007 (0.82)	0.006 (0.73)	0.001 (0.58)	0.001 (0.47)
HighTech	+	-0.017 (-1.04)	-0.016 (-0.98)	-0.006 (-1.53)	-0.005 (-1.44)
NASDAQ	+	0.076*** (4.07)	0.076*** (4.07)	0.017*** (3.98)	0.017*** (3.99)
UW	-	-0.002 (-0.38)	-0.003 (-0.47)	-0.001 (-0.42)	-0.001 (-0.53)
Big4	-	-0.020 (-1.09)	-0.019 (-1.05)	-0.009** (-2.10)	-0.009** (-2.05)
RiskFactors	+	0.000 (0.16)	0.000 (0.14)	-0.000 (-1.24)	-0.000 (-1.28)
GC	-	-0.018 (-0.45)	-0.016 (-0.40)	-0.004 (-0.40)	-0.003 (-0.34)
Insider Selling	+	0.024 (0.83)	0.019 (0.67)	0.008 (1.25)	0.007 (1.03)
Retained	-	0.072 (1.18)	0.075 (1.23)	-0.034*** (-2.41)	-0.033*** (-2.35)
PR	+	0.514*** (8.86)	0.515*** (8.88)	0.106*** (7.88)	0.107*** (7.93)
VarMR	?	338.513** (2.39)	328.888** (2.32)	54.299* (1.65)	51.327 (1.56)
MR	+	0.821*** (2.91)	0.838*** (2.96)	0.136** (2.07)	0.141** (2.15)
F-Value		12.52***	11.92***	8.46***	8.17***
Adj. R-square		37.46%	40.99*	27.95%	28.31%
Highest VIF		2.54	2.54	2.54	2.54
N		328	328	328	328

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Complexity is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses in the prospectus. Complexity_Only is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Complexity is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses in the prospectus. Complexity_Only is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

Table 40. Complexity: OLS regression results excluding overpricing

Variable	Exp. sign	Full sample using return [a]		Full sample using amount [b]	
		Model 1	Model 2	Model 1	Model 2
		Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
		(1)	(2)	(3)	(4)
Intercept		-0.268*** (-3.42)	-0.265*** (-3.36)	0.030* (1.82)	0.031* (1.87)
Complexity	?	-0.048* (-1.78)		-0.007 (-1.24)	
Complexity_Only	?		-0.056 (-1.46)		-0.010 (-1.26)
RESTATE*Complexity	?		-0.040 (-1.09)		-0.004 (-0.52)
RESTATE*HProb(ICW)	?	-0.021 (-0.46)	-0.022 (-0.47)	-0.004 (-0.47)	-0.005 (-0.47)
RESTATE*LProb(ICW)	?	0.030 (0.72)	0.029 (0.71)	0.002 (0.26)	0.002 (0.25)
Prob(ICW)	?	0.033 (0.37)	0.029 (0.33)	0.009 (0.47)	0.007 (0.39)
LN(MV)	+	0.042*** (3.78)	0.042*** (3.76)	0.007*** (3.15)	0.007*** (3.11)
LN(Age)	-	0.012 (1.39)	0.012 (1.37)	0.004 (2.03)	0.004 (1.99)
HighTech	+	-0.007 (-0.40)	-0.007 (-0.39)	-0.003 (-0.73)	-0.002 (-0.72)
NASDAQ	+	0.078*** (4.26)	0.079*** (4.25)	0.018*** (4.63)	0.018*** (4.62)
UW	-	0.000 (0.06)	0.000 (0.04)	0.000 (0.22)	0.000 (0.18)
Big4	-	-0.029* (-1.51)	-0.029* (-1.49)	-0.009** (-2.19)	-0.009** (-2.17)
RiskFactors	+	-0.001 (-1.03)	-0.001 (-1.03)	-0.001 (-2.71)	-0.001 (-2.71)
GC	-	0.030 (0.59)	0.031 (0.62)	0.008 (0.72)	0.008 (0.77)
Insider Selling	+	0.014 (0.49)	0.013 (0.45)	0.005 (0.83)	0.005 (0.76)
Retained	-	0.150 (2.22)	0.151 (2.22)	-0.061*** (-4.31)	-0.060*** (-4.28)
PR	+	0.450*** (7.43)	0.452*** (7.42)	0.088*** (7.03)	0.089*** (7.04)
VarMR	?	254.378* (1.73)	252.199* (1.71)	44.862 (1.46)	44.019 (1.43)
MR	+	0.308 (1.06)	0.312 (1.07)	0.037 (0.61)	0.039 (0.64)
F-Value		10.74***	10.11***	7.72***	7.28***
Adj. R-square		39.00%	38.76%	30.60%	30.40%
Highest VIF		2.48	2.49	2.48	2.49
N		260	260	260	260

See Table 8 for the definition of groups and variables.

[a] Dependent variable is LN(Close_Underpricing). Complexity is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses in the prospectus. Complexity_Only is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

[b] Dependent variable is LN(Close_Money). Complexity is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses in the prospectus. Complexity_Only is coded 1 if the IPO firm discloses a complex accounting weakness as one of material weaknesses, but does not disclose restatement attributed to accounting errors in the prospectus.

*** Significant at or below the 0.01 level (one tailed where signs are predicted, two-tailed otherwise).
** Significant at or below the 0.05 level (one tailed where signs are predicted, two-tailed otherwise).
* Significant at or below the 0.1 level (one tailed where signs are predicted, two-tailed otherwise).

CHAPTER 8

SUMMARY AND CONCLUSIONS

Section 302 of SOX requires managements of companies to evaluate the effectiveness of internal control and identify any significant changes in internal control since the previous quarter. Section 404 of SOX requires auditors to evaluate and report on clients' internal control. While academic studies have documented positive benefits of good internal controls, Section 404 has been widely criticized because of significant costs associated with its compliance. Although IPO firms are not required to comply with Sections 302 and 404 of SOX and have a one-year exemption from those requirements, most companies in my sample emphasize the importance of effective internal control as a risk factor in their prospectuses, and many IPO firms voluntarily disclose that they have identified internal control weaknesses and implemented remediation procedures. The voluntary compliance with these SOX standards by IPO firms suggests that their benefits exceed their costs at least in the IPO environment after SOX.

I investigate two research questions. First, why do IPO firms voluntarily disclose internal control weakness? I find that IPO firms that restate their financial statements are more likely to disclose internal control weaknesses. This result is similar to the findings reported by Ashbaugh-Skaife *et al.* (2007a) and Doyle *et al.* (2007b), whose samples comprise large companies that were required to comply with section 404. Additionally, I find that IPO firms with greater *ex ante* litigation risk as measured by IPO proceeds are more likely to discover and disclose internal control weaknesses. This finding is unique to IPO companies since Ashbaugh-Skaife *et al.* (2007a) do not find a significant

association between litigation risk and internal control weaknesses for their sample.

Second, what are the economic consequences of the voluntary disclosures by IPO firms about internal control weaknesses? I find that the voluntary disclosure of internal control weaknesses and the relevant remediation procedures is associated with less underpricing, consistent with the disclosure reducing *ex ante* uncertainty about firm value. In sum, my results suggest that these voluntary disclosures have the positive economic consequence of increasing IPO proceeds, or equivalently, reducing IPO firms' cost of capital.

In a recent speech, the SEC Commissioner, Roel C. Campos reemphasizes the effectiveness of Section 404, saying that "although the implementation costs and burdens of Section 404 have been much higher than originally anticipated, nearly three years of experience have made it clear that the benefits gained from improved internal controls over financial reporting are significant ones that we absolutely cannot afford to lose."[22] Recent evidence also suggests that during the three years since Section 404 of SOX has been effective, the adverse opinion rate from auditors has been dropped from 16.9 percent to 10.1 percent (Audit Analytics 2007). This suggests that complying with Sections 302 and 404 of SOX has produced benefits in the form of improved internal controls, although the economic recovery muddies inferences.

While all of the evidence so far has been for public companies, the preferences revealed by voluntary disclosure in my study indicate that IPO firms and IPO markets benefit from internal control disclosure requirements under SOX. In other words, by voluntarily disclosing their internal control weaknesses over pre-IPO financial reporting

[22] For more detail, see http://www.sec.gov/news/speech/2007/spch030807rcc-2.htm

and the relevant remediation procedures, IPO firms increase their IPO proceeds. From the perspective of the financial markets, voluntary disclosure has likely reduced *ex ante* uncertainty about the new issues' value.

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