Financial Misstatements and Contracting in the Equity Market: Evidence from Seasoned Equity Offerings*

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Abstract

We examine whether a firm's previous financial misrepresentation affects the design of underwriting contracts in seasoned equity offerings (SEOs). We find that firms that restate earnings due to accounting irregularities subsequently pay higher underwriting fees (about 10-20% in relative terms or 50-100 basis points in absolute terms). The effect of restatements on underwriting fees is more pronounced for larger offerings and offerings in the first few years after restatements, and lessens as restatement firms make corporate governance improvements. We also find that restatement firms employ more lead underwriters and larger syndicates and are less likely to use the faster and cheaper accelerated underwriting method than the traditional book building process. Overall, our evidence supports the hypothesis that financial misrepresentation undermines a firm's financial reporting integrity and increases its contracting costs when accessing the equity market, and subsequent corporate governance improvements can mitigate this adverse consequence.

I. Introduction

The integrity of financial reporting by public corporations and its ramifications for firm value have long been subjects of significant interest to capital market participants, regulators, and academic researchers. Transparent and truthful representations of firm performance and financial conditions facilitate accurate pricing of securities and ensure efficient allocation of capital. High-profile corporate scandals at Enron, WorldCom, and other major corporations in the early 2000s led to more stringent listing requirements by NYSE and NASDAQ and to the passage of the Sarbanes-Oxley Act of 2002. Reports published by the United States General Accounting Office (GAO) indicate that financial misreporting is a more widespread problem than the few major cases. For example, the period of 1997 to 2006 witnessed over 2,700 announcements of earnings restatements.

It is well documented that revelations of financial misreporting cause immediate, large declines in share value (see, e.g., Dechow, Sloan, and Sweeney (1996), Anderson and Yohn (2002), and Palmrose, Richardson, and Scholz (2004)). As such disclosures call into question the integrity of a firm's financial reporting system, firms are likely to also experience long-lasting repercussions in their contracting in the factor and product markets given the reliance on accurate financial information by various contracting parties (Ball (2001) and Holthausen and Watts (2001)). Research on this issue has been limited. Graham, Li, and Qiu (2008) examine the effects of earnings restatements on the contracting between firms and creditors in a sample of bank loans. But the literature has been largely silent on the contracting implications of financial misrepresentation in the equity market. Since equity market transactions are particularly susceptible to information asymmetry and adverse selection problems (Myers and Majluf (1984)), financial reporting integrity may have potentially more profound effects on contracting outcomes. In addition, while prior research focuses on the response by either shareholders or creditors, firms as a nexus of contracts interact with many other parties (Jensen and Meckling (1976)). It remains unknown whether corporate disclosures of financial misreporting change the contracting terms

between firms and non-investor groups or entities. Finally, to the extent that firms committing financial misrepresentation subsequently take corrective measures to improve internal control and governance and restore credibility to their financial reporting (Farber (2005), Cheng and Farber (2008), and Hennes, Leone, and Miller (2008)), it is an interesting yet unexplored issue whether these remedial actions are able to mitigate any elevated contracting costs faced by misreporting firms.

We aim to answer these questions by examining the underwriting contracts between firms and investment banks in seasoned equity offerings (SEOs). We investigate how prior incidences of financial misrepresentation by issuing firms affect the price and nonprice aspects of these contracts. Investment banks provide services and expertise to firms on a variety of corporate finance activities, such as securities issuance, mergers and acquisitions, and restructuring. As sophisticated players in the financial markets, they are likely to take into account an issuing firm's past misreporting when negotiating terms of the underwriting contracts for a number of reasons. First, an issuing firm's past misreporting reduces the credibility of its financial statements. As a result, the due diligence process becomes more challenging for underwriters since they cannot rely solely on the information furnished by the issuing firm. Instead, they may need to expend more resources on fact finding and verification.

Second, by entering into an underwriting contract, investment banks implicitly certify the value of issuers' securities to the capital market. If the issuers are found out later to have misled investors through an inaccurate portrayal of their financial conditions, both the underwriters and the issuing firms will be subject to investor lawsuits and potentially liable for investor losses (DuCharme, Malatesta, and Sefcik (2004)). If past reporting violations make a firm's financial disclosure less trustworthy, investment banks may perceive a higher litigation risk from underwriting the company's stock offering.

Third, since investor demand is likely to be weak for stock offerings by misreporting firms, these issues would entail more marketing and placement efforts from underwriters and

expose underwriters to greater inventory risk. Based on these considerations, we hypothesize that investment banks will design the underwriting contracts (price and nonprice terms) in ways that account for the extra work and risk involved with SEOs of misreporting firms, especially if the issuers have not addressed adequately the internal control and corporate governance weaknesses that may have led to the misreporting.[1]

We find supportive evidence for our conjecture in a sample of 2,337 firm-commitment SEOs issued by U.S. firms during the period from 1997 to 2008. Specifically, we show that firms with past earnings restatements pay significantly higher underwriting spreads when compared both to themselves prior to restatements and to non-restatement firms. The results are primarily driven by restatements due to accounting irregularities, i.e., deliberate manipulation, rather than unintentional errors. This suggests that underwriters discriminate between restatements of varying nature and severity and firms committing more serious financial misreporting face greater contracting costs. In addition, our findings are robust to controlling for the issuing firm's information asymmetry (Altinkilic and Hansen (2000) and Lee and Masulis (2009)), stock market liquidity (Butler, Grullon, and Weston (2005)), and corporate governance (Amiyatosh and Kim (2010)), and to correcting for potential self-selection bias arising from firms' decisions to issue equity.

Moreover, we show that restatement firms can restore credibility to their financial reporting and regain investor trust by implementing corporate governance improvements.

[1] There is a strand of literature that examines whether financial reporting quality is linked to costs of equity capital measured by either realized stock returns or implied discount rates estimated based on an assumed stock valuation model and analyst forecasts of earnings and dividends. While some researchers find that lower-quality financial reporting are associated with higher costs of equity capital (e.g., Botosan (1997), Francis et al. (2004), and Hribar and Jenkins (2004), Beneish, Billings, and Hodder (2008)), others argue that financial reporting quality is a diversifiable risk and find no relation between financial reporting quality and costs of equity capital (e.g., Ball and Brown (1969), Kasznik (2004), and Ogneva, Subramanyam, and Raghunandan (2007), Core, Guay, Verdi (2008), Hughes, Liu, and Liu (2009)). The literature is also faced with the empirical challenge of measuring costs of equity, since realized stock returns are poor proxies for expected stock returns (Fama and French (1997)) and implied cost of equity estimates are flawed due to biases in analyst forecasts (Kasznik (2004) and Guay, Kothari, and Shu (2006)). By focusing on the underwriting contracts in SEOs and the actual costs of raising equity, our analysis is free both of any assumption of equilibrium asset pricing model that specifies whether financial reporting quality is priced and of the aforementioned measurement issues.

Specifically, the effect of restatements on underwriting fees decreases as restatement firms increase the percentage of independent directors on their boards and replace a larger percentage of audit committee members present at restatement announcements.

The higher underwriting fees due to restatements display other cross-sectional variations as well. In particular, we find that the effect of restatements on underwriting fees is stronger in SEOs that attempt to issue a larger number of shares relative to shares outstanding. This is consistent with the idea that larger offerings by restatement firms involve especially greater underwriting risk and efforts (Butler, Grullon, and Weston (2005)). We also find that that the effect of restatements is more pronounced in the first few years after restatements, suggesting that investor concerns over the integrity of a firm's financial reporting are heightened immediately after earning restatements and appear to lessen over time in the absence of further reporting violations.

Variations in other dimensions of the underwriting contracts are also consistent with restatement firms losing credibility in their financial reporting and facing more obstacles and weaker demand in equity issuance. For example, we find that restatement issuers employ significantly larger underwriting syndicates with more lead managers. They are also more likely to utilize an extensive book building process than the faster and cheaper accelerated underwriting method that either bypasses or substantially curtails the conventional book building. Consistent with evidence from the gross spread analysis, both of these results are driven by restatements due to accounting irregularities, and suggest that offerings by restatement firms entail greater due diligence, marketing, and placement efforts from underwriters.

In addition to the characteristics of underwriting contracts between issuing firms and investment banks, we examine the stock price reaction to SEO announcements as another gauge of the costs firms incur in accessing the equity market. The adverse selection model in Myers and Majluf (1984) predicts stock price declines upon SEO announcements and has received empirical support from a large number of studies (see Eckbo, Masulis, and Norli (2007) for a

comprehensive literature review). Consistent with past restatements rendering a firm's financial disclosure less trustworthy and exacerbating investor concerns about adverse selection problems, we find significantly more negative stock price reactions to the SEO announcements by restatement firms. Again, this result is primarily concentrated in firms that have intentionally manipulated their earnings.

Our study makes three contributions to the literature. First, we provide clear evidence on how financial misrepresentation affects firms' contracting outcomes in the equity financing setting. Our findings of higher underwriting fees, larger underwriting syndicates, and lengthier and costlier underwriting process associated with SEOs of restatement firms suggest that misreporting firms experience higher costs in contracting with outside parties. To the extent that firms anticipating especially severe penalties will avoid accessing the equity market, the effects we uncover are a lower bound of the incremental contracting costs levied on restatement firms in equity issuance. In addition, our analysis yields several novel cross-sectional variations in the effect of financial misreporting on contracting costs. For example, we find that higher underwriting fees due to previous restatements can be mitigated through corporate governance improvements that rebuild investor confidence in firms' financial reporting and are more pronounced in the first few years after restatements.

Second, we identify the issuer's financial reporting integrity indicated by previous financial misrepresentation as a new determinant of SEO underwriting costs. Prior research shows that firms with greater information asymmetry (Altinkilic and Hansen (2000)) and Lee and Masulis (2009)) and poorer stock market liquidity (Butler, Grullon, and Weston (2005)) incur higher flotation costs when issuing seasoned equity. Our evidence indicates that the issuer's financial reporting integrity is another factor that investment banks take into account in pricing underwriting contracts, and its effect on flotation costs is incremental to those of other determinants.

Third, our findings highlight the importance of differentiating among earnings restatements based on their causes. Hennes, Leone, and Miller (2008) develop a sophisticated classification scheme to separate restatements into those due to accounting irregularities and those due to unintentional errors. They show that such a distinction significantly enhances the power of tests to detect the effect of restatements on executive turnovers. In a different setting, we find highly consistent results throughout our analysis that it is the irregularity-related restatements that are significantly related to SEO underwriting fees, underwriting syndicate structure, underwriting method, and announcement returns. This lends further support to the validity of Hennes et al.'s methodology.

The rest of the paper is organized as follows. Section II describes the construction of the SEO sample and the identification of restatement firms. Section III presents the results from our empirical analysis. Section IV concludes.

II. Sample construction

We begin our sample construction by extracting from the SDC Global New Issues database all firm-commitment seasoned equity offerings (SEOs) by U.S. firms from January 1, 1997 to December 31, 2008. For each SEO in the initial sample, we require that the offering size is at least $10 million, the offer price is at least $5, the percentage of secondary shares in the offering is less than 100%, and the issuer has financial statement information available from Compustat and stock return data available from CRSP. We also follow literature conventions to exclude units, rights, closed-end fund and simultaneous international offerings. The final sample consists of 2,337 SEOs. Table 1 presents the sample distribution by offer year. The number of SEOs is at the highest level in 1997, the beginning of our sample period, but declines significantly after that and drops to its lowest level in 2000 and 2001, coinciding with the burst of the internet bubble. The offering activity starts to recover from 2002 and reaches another high

point of 252 issues in 2004. Then it declines gradually to 146 offerings in 2008, the last year of our sample period and also the year when the stock market plummeted due to the financial crisis.

Our sample of restatement firms comes from two reports issued by the U.S. General Accounting Office (GAO) in 2003 and 2007, which include a list of companies that restated their financial statements during the period from 1997 to 2006. According to the GAO, "a restatement occurs when a company, either voluntarily or prompted by auditors or regulators, revises public financial information that was previously reported." The GAO sample includes both financial reporting frauds or irregularities (intentional misreporting) and accounting errors (unintentional misstatements). Hennes, Leone, and Miller (2008) develop a methodology that classifies a restatement as an irregularity if it satisfies at least one of the three criteria: (i) variants of the words "irregularity" or "fraud" were explicitly used in restatement announcements or relevant filings in the four years around the restatement; (ii) the misstatements came under SEC or DOJ investigations; and (iii) independent investigations were launched by boards of directors of restatement firms. In a sample of restatements between 2002 and 2005, they demonstrate the importance and effectiveness of their classification scheme by showing that compared to error restatements, irregularity restatements are met with significantly more negative announcement returns (on average: -14% vs. -2%), are followed by shareholder class action lawsuits at a significantly higher rate, and lead to significantly more CEO/CFO turnovers. We obtain from Andrew Leone's website the irregularity-error classification for the GAO sample of restatements.[2]

We match the samples of restatements and seasoned equity offerings, and find that 202 of the 2,337 SEOs are by restatement firms after their restatements, while the rest are either by firms that have never restated earnings or by restatement firms prior to their restatements.[3] The small

[2] We thank Karen Hennes, Andrew Leone, and Brian Miller for generously sharing their data.
[3] Since the GAO reports identify firms that restated earnings during the period from 1997 to 2006, it is possible that some SEOs in our sample are by firms that restated earnings prior to 1997 or after 2006. These SEOs will be classified as offerings by non-restatement firms, and their presence would bias against

number of offerings by restatement firms after restatements is consistent with Chen, Cheng, and Lo's (2009) finding that firms face greater financial constraints after restatements. As shown in Table 1, 162 of these 202 SEOs are issued by companies whose restatements are due to unintentional accounting errors, and 40 are issued by firms whose restatements are due to intentional misreporting.

III. Empirical results

A. The effect of restatements on underwriting fees

A.1. Baseline analysis

Our main test is to examine whether investment banks charge higher underwriting fees for SEOs by companies that have restated their financial statements, especially when restatements are due to intentional misreporting. Our measure of underwriting fees is the gross spread per share scaled by the offer price. In firm commitment offerings, underwriters purchase shares from issuing firms at a discount and sell the shares to investors at the offer price. The gross spread is the difference between the offer price and the purchase price paid by underwriters to issuing firms. Table 2 presents the summary statistics for the whole sample, as well as for different sub-samples. For the full sample, the mean and median percentage gross spread are 4.9% and 5%, similar to what Butler, Grullon, and Weston (2005) and Lee and Masulis (2009) find for their samples. The average (median) offering size measured by the principal amount is $170 ($80) million, representing about 22.5% (17.7%) of the pre-issue market value of equity for the average (median) issuer in our sample.

When we partition the sample into SEOs by firms that have restated earnings and those by firms that have not, we find that the former are associated with slightly lower gross spreads. For example, the gross spreads of SEOs by restatement firms have a mean (median) of 4.5%

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us finding support for our hypothesis that SEOs of restatement firms are associated with higher issuance costs.

(4.8%), while the mean (median) gross spread of offerings by non-restatement firms is 5.0% (5.0%). This is most likely driven by the fact that the principal amount of SEOs by restatement firms tends to be much larger and that there is a well-documented negative relation between percentage gross spread and principal amount (see, e.g., Altinkilic and Hansen (2000) and Butler, Grullon, and Weston (2005)). The average (median) offering size by restatement companies is $442 ($116) million, while the average (median) principal amount by non-restatement issuers is only $145 ($77) million. Therefore, in order for us to draw reliable inference on the effect of past restatements on underwriting fees, it is important to control for offering size and other known determinants of gross spread in a multivariate regression framework.

We classify these control variables into two groups: firm characteristics and issue characteristics. The former group includes firm size, leverage, Tobin's q, return on assets (ROA), stock return volatility, share turnover, and NYSE listing. The second group includes whether an issue is shelf registered, the proportion of secondary shares offered, lead underwriter reputation, as well as offering size measured by the logarithmic transformation of the principal amount. Appendix A contains the definitions of these variables.

Larger firms are likely to have more analyst coverage and attract more institutional shareholders. Greater analyst coverage reduces the information asymmetry between firms and outside investors. A more transparent information environment is conducive to eliciting greater demand from investors for a firm's equity offering. Therefore, underwriters may find it easier to market and place offerings by larger firms and thus charge a lower gross spread. We measure firm size by the logarithmic transformation of the issuer's book value of total assets at the pre-issue fiscal year end (Compustat data 6).

Since underwriters guarantee the success of an offering in a firm-commitment issue by agreeing to purchase the entire offering from the issuer at a fixed price, they will take on more price risk in SEOs of firms with greater stock price fluctuations. To compensate for the additional risk, we expect investment banks to charge higher fees for such issues. We measure stock price

fluctuations by the standard deviation of daily stock returns during the 250 trading days prior to the offer date. To the extent that firms with higher stock return volatilities may also be associated with greater information asymmetry, underwriters may find that certifying the value of these companies entails more efforts and brings more litigation risk. As a result, they demand higher compensation for their services.

Firm leverage is defined as the sum of long-term debt (data 9) and short-term debt (data 34) over the book value of total assets at the pre-issue fiscal year end. Since highly levered issuers are associated with higher probabilities of financial distress and are likely to use offer proceeds to repay debt rather than take advantage of profitable growth opportunities, investors may be less enthusiastic about the SEOs of these firms. As a result, placing these offerings requires greater efforts from and carries more risk to underwriters, who in response charge higher fees.

The adverse selection problem for companies with higher Tobin's q tends to be less of a concern, since these firms are more likely to have profitable growth options. We expect that shareholders are more receptive to the equity offerings from firms with more profitable growth options. As a result, underwriters charge lower fees for these issuers. We define Tobin's q as the ratio of an issuer's market value of assets over its book value of assets at the pre-issue fiscal year end, where the market value of assets is computed as the book value of assets minus the book value of common equity (data 60) plus the market value of common equity (data 25 x data 199).

Butler, Grullon, and Weston (2005) argue that underwriters face lower inventory risk when placing shares that are liquid and they show that stock liquidity has a negative impact on gross spread. To control for the market liquidity of a stock, we include share turnover as an explanatory variable for gross spread. Share turnover is defined as the ratio of the average daily trading volume during the 250 trading days prior to the offer date over the number of shares outstanding.[4]

[4] For stocks listed on Nasdaq, we follow Gao and Ritter's (2010, Appendix B) algorithm to adjust their trading volumes for the different ways in which Nasdaq and NYSE-Amex volumes are computed. We

Investment banks may find it easier to place shares listed on the NYSE, since firms trading on the NYSE tend to have a larger shareholder base. To control for this possibility, we include an indicator for NYSE listing in the regression model of gross spread.

With respect to issue-specific characteristics, we include an indicator for shelf registrations, a measure of lead underwriter reputation, and the percentage of secondary shares in an offering. Autore, Kumar, and Shome (2008) find that SEOs using shelf registrations have lower underwriting fees. More reputable underwriters may provide better-quality service and can charge a higher spread if their service is in high demand. Alternatively, if higher-ranked underwriters are able to conduct the underwriting in a more efficient manner, they may be able to pass some of the cost savings onto the issuers, resulting in a lower spread. We measure the reputation of each SEO's lead manager by its Carter and Manaster (1990) ranking updated by Jay Ritter and made available on his website.[5] For SEOs with multiple lead managers, we use the average ranking of these managers. Secondary shares are shares owned by existing shareholders, normally insiders of issuing firms. The effect of secondary shares on underwriting fees depends on the motive behind insider selling. If insider selling is mostly for liquidity needs, we do not expect it to have any bearing on underwriting fees, but if insiders sell to take advantage of favorable price levels, the adverse selection effect of their action may make a successful offering more difficult and call for higher underwriting compensation. Finally, we also control for calendar year fixed effects and Fama-French 12-industry fixed effects to account for any time-specific or industry-specific factors that could influence underwriting fees.

We present the coefficient estimates of our regression model of underwriting gross spread in Table 3. In parentheses are two-sided *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and firm clustering (Petersen (2009)). The dependent variable

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thank Jay Ritter for suggesting this approach. Our results are robust if we simply divide Nasdaq volumes by two.

[5] Loughran and Ritter (2004) use this ranking in their study of time-series variations in IPO underpricing.

is the log transformation of percentage gross spread.[6] In column (1), our key explanatory variable is an indicator variable, *restatement*, that is equal to one for SEOs by firms that have previously restated earnings, regardless of whether the restatements are due to errors or irregularities. The coefficient estimate of the "restatement" dummy variable is -0.025, insignificantly different from zero with a *p*-value of 0.479.

In column (2) of Table 3, we replace the "restatement" dummy with two indicator variables, one for restatements caused by errors, and the other for restatements due to irregularities. We find that the indicator for errors has a negative and insignificant coefficient, but the indicator variable for irregularities has a positive coefficient of 0.099, which is highly significant with a *p*-value of 0.002. This suggests that firms that committed deliberate earnings manipulations suffer more damage to the credibility of their financial reporting and investment banks charge higher fees for these firms' SEOs to compensate for the greater underwriting efforts and risk involved. In terms of the economic significance of the coefficient, it appears that ceteris paribus, the percentage gross spread is about 10% higher for SEOs by irregularity-restatement firms, and this translates into 50 basis points (bps) for the typical SEO in our sample with a 5% (500 bps) gross spread. In dollar terms, a 50 bps increase in gross spread raises the underwriting fee by about $3.8 million for the average SEO by an irregularity-restatement firm.

The effect of irregularity-induced restatements on underwriting fees is even more striking when we introduce issuer fixed-effects in column (3) to control for any time-invariant firm characteristics that might be responsible for the effect of restatements uncovered by the regression in column (2). We find that the indicator for error-induced restatements is still not significant, and the indicator for irregularities has a positive coefficient that is significant with a *p*-value of 0.03. Comparing to the results in column (2), the coefficient of the irregularity dummy

[6] Butler, Grullon, and Weston (2005) and Lee and Masulis (2009) use this measure as well. The logarithmic transformation offers the convenience that the coefficient estimates can be interpreted as the percentage change in gross spread per one-unit increase in independent variables, and this is especially convenient for dichotomous explanatory variables. Our results are robust to using the percentage spread as the dependent variable.

nearly doubles in magnitude to 0.192. This suggests that compared to themselves prior to restatements, firms that intentionally misstated financial reports have to pay almost 20% higher percentage gross spreads, which translates into 100 bps in spread.[7]

With respect to the control variables, their coefficients are largely consistent with the evidence in Butler, Grullon, and Weston (2005) and Lee and Masulis (2009). Specifically, as shown in column (2), underwriting spreads are significantly lower for larger offerings and offerings by larger firms traded on the NYSE that have higher Tobin's q, better stock market liquidity, and lower stock return volatility. Consistent with Autore, Kumar, and Shome (2008), we also find that shelf-registered offerings are associated with significantly lower underwriting spreads.

A.2. Matched-sample analysis

One potential concern with the regressions in Table 3 is that they may not be able to control adequately for the differences in issue- and issuer-specific characteristics between the restatement and non-restatement subsamples. In particular, as shown in Table 2, both the size of the issuing firm and the size of the offering are much larger for the restatement subsample than for the non-restatement subsample. These differences could affect underwriting spread in non-linear fashions that linear regressions such as those in Table 3 cannot fully capture.

We take three approaches to address this potential problem. First, we note that the size differences actually bias against us finding higher underwriting spreads for SEOs by restatement firms, since it is well documented that the percentage underwriting spread is lower for larger offerings and for offerings by larger firms (see, .e.g., Altinkilic and Hansen (2000) and Butler, Grullon, and Weston (2005)). Second, we include higher-order, such as quadratic and cubic,

[7] This evidence should be viewed with caution since only nine firms issued SEOs both before and after irregularity-induced restatement. This low frequency of repeat equity issues by irregularity-restatement firms, which biases against finding significant results from the firm fixed effects specification, is consistent with firms facing substantially higher contracting costs after irregularity restatements and thus having less incentive to access the equity market.

terms of firm size and offering size as additional controls in the spread regressions in Table 3 and find that our results on the effect of restatements continue to hold.

Third, we conduct a matched-sample analysis in which for each restatement firm's SEO, we select a matching SEO by a non-restatement firm based on the following three criteria: (1) the matching SEO's offer date is within one year of the offer date of the restatement firm's SEO, (2) the non-restatement firm's size measured by total assets falls between 75% and 125% of the restatement firm's size, and (3) conditional on the first two conditions being met, the matching SEO's offer size measured by principal amount is closest to that of the restatement firm's SEO. We are able to find matches for all 202 SEOs by restatement firms, resulting in a sample of 404 SEOs.

Panels A-C of Table 4 show that the SEOs by restatement firms and non-restatement firms in the matched sample are very similar in terms of issuer size and offer size, validating the effectiveness of our matching. We then estimate gross spread regressions using the matched samples and present the results in Panel D of Table 4. We find that the restatement dummy in column (1) has an insignificant coefficient, suggesting that SEOs by restatement firms as a whole are not associated with higher underwriting fees. However, there is strong evidence of higher underwriting fees charged on SEOs by firms with irregularity-induced restatements, as indicated by the significantly positive coefficient on the irregularity-restatement dummy in column (2). These inferences are consistent with those we draw from the full sample regressions in Table 3. Also worth noting is that the magnitude of the effect of irregularity restatements on gross spread is similar between the full sample and the matched sample. Overall, our analysis in this section shows that our findings are not driven by any potential inadequate control for size differences among SEOs and issuing firms.

A.3. Controlling for issuing firm governance characteristics

An alternative interpretation of our findings on the effect of restatements on underwriting fees is that SEO firms with prior restatements may be associated with poor corporate governance[8], and firms with poor corporate governance pay higher underwriting fees when floating seasoned equity. In other words, the effect of restatements we identify could be an artifact of that of issuing firm corporate governance.

To address this concern, we control for each issuing firm's internal and external governance characteristics at the time of the offering in the gross spread regression. Toward that end, we merge our sample of SEOs with the IRRC database to obtain information on firms' anti-takeover provisions (ATPs) and board characteristics. In column (1) of Table 5, we control for the issuer's Gompers, Ishii, and Metrick (GIM, 2003) index based on 24 ATPs, and in column (2), we control for board size, the percentage of independent directors, and CEO/Chairman duality, which is an indicator variable equal to one if the CEO is also the chairman of the board and zero otherwise. Since IRRC covers mostly large companies while our sample spans a wider spectrum of firm size, the number of observations used in these two regressions is substantially smaller than that in previous tables. Nevertheless, we find that the coefficient on the irregularity-restatement dummy continues to be positive and significant. The governance variables we control for, on the other hand, do not enter significantly in the gross spread regressions. These findings suggest that the effect of restatements is not driven by issuer corporate governance.

A.4. Controlling for additional measures of information asymmetry

[8] Note that the evidence has been rather mixed on whether poor corporate governance leads to earnings restatements (see, e.g., Beasley (1996), Dechow, Sloan, and Sweeney (1996), Agrawal and Chadha (2005), Farber (2005), Larcker, Richardson, and Tuna (2007), and Baber, Kang, Liang, and Zhu (2009)). To the extent that poor corporate governance indeed contributes to earnings restatements, firms appear to take steps to improve their corporate governance practice that led to financial misreporting (Farber (2005) and Cheng and Farber (2008)). But if a restatement firm has not been able to implement all necessary corporate governance improvements by the time of a seasoned equity offering, it may still be associated with poor corporate governance at the offering.

In this section, we control for more measures of information asymmetry in addition to firm size and stock return volatility included in our baseline regressions in Table 2. Specifically, we follow Graham, Li, and Qiu (2008) by controlling for the dispersion (standard deviation) of analyst forecasts of current-fiscal-year earnings per share scaled by stock price, since Palmrose, Richardson, and Scholz (2004) find that analyst forecast dispersion increases for firms announcing restatements. We further control for the number of analysts covering each issuing firm to capture the possibility that restatement firms receive less analyst coverage. We also include the consensus (mean) analyst forecast for current-fiscal-year earnings per share scaled by book assets per share as an additional control to account for the possibility that restatement firms have poorer future performance, which could lead to higher underwriting spreads. We construct these new variables based on information from the I/B/E/S database in the month prior to each SEO. Requiring data availability from I/B/E/S reduces our sample size to 1,767 SEOs. We re-estimate models (1) and (2) in Table 3 with these additional controls and present the results in Table 6. We find that the number of analysts covering an issuing firm has a significantly negative effect on underwriting spread while the analyst forecast dispersion has a significantly positive effect, consistent with underwriters charging higher fees on issuers with higher information asymmetry. The coefficient on the average analyst forecast of future earnings is negative but insignificant. More importantly, we continue to find that SEOs by issuers with irregularity restatements are associated with significantly higher underwriting fees, as indicated by the significant and positive coefficient on the irregularity-restatement dummy in column (2).

In addition to analyst based variables, we also control for information asymmetry measures based on earnings accruals.[9] Lee and Masulis (2009) find that seasoned equity issuers with lower accruals quality pay higher underwriting fees. We construct two measures of accruals

[9] A caveat of accruals-based measures is that they potentially suffer from measurement errors and capture differences in firms' operating environment and production functions, making interpretations difficult (Dechow, Sloan, and Sweeney (1995), Ball and Shivakumar (2008), and Costello and Wittenberg-Moerman (2011)). Restatements, on the other hand, provide a strong and unambiguous signal about the reliability of a firm's financial reporting.

quality. The first measure is the absolute value of the issuer's performance-adjusted discretionary accruals (Kothari, Leone, and Wasley (2005)).[10] Our sample size is reduced to 1,254 because we cannot estimate discretionary accruals for about half of the sample due to lack of data. The regression results are shown in column (1) of Table 7. Consistent with Lee and Masulis (2009), the coefficient of the accrual quality measure is significant and positive. More importantly, we continue to find significantly positive coefficients for the irregularity dummy variable, even in this smaller sample.

Our second measure of accruals quality is the one developed by Dechow and Dichev (2002), namely, the standard deviation over the previous five years of a firm's annual accruals unexplained by cash flows in the current year, prior year, and next year. We control for this alternative measure in column (2) of Table 7. We find that it has a significant and positive effect on gross spread, but the coefficient on the irregularity restatement dummy remains significantly positive. Overall, our results indicate that a firm's financial reporting integrity has an incremental effect on its SEO contracting costs that is beyond that of accruals-based measures for information asymmetry.

A.5. Correcting for self-selection bias

We recognize that a self-selection bias potentially complicates our analysis since firms issuing SEOs are not a random sample. This issue could be especially relevant in our setting, since our tests are intended to identify the effect of a firm's past financial misreporting on its SEO issuance costs, and past financial misreporting is likely to impact the firm's likelihood of issuing seasoned equity in the future.

To correct for any potential self-selection bias, we adopt the Heckman (1978) two-step procedure. In the first step, we estimate a probit model using all COMPUSTAT firms with necessary data during our sample period to predict the likelihood of a firm issuing seasoned

[10] Please see Appendix B for more details on the construction of this measure.

equity in a given year. The dependent variable is equal to one if a firm issues seasoned equity during a year according to the SDC and zero otherwise. The explanatory variables include the dummy variables for error and irregularity restatements, firm size, leverage, Tobin's q, ROA, stock return volatility, the ratio of capital expenditure to the book value of total assets, the ratio of corporate cash holding to the book value of total assets, a dividend-paying status dummy, and the buy-and-hold market-adjusted return over the previous year. Other than the two restatement dummy variables, the model specification is very similar to that used by DeAngelo, DeAngelo, and Stulz (2010). The estimation results presented in Panel A of Table 8 show that firms with irregularity-induced restatements are less likely to issue seasoned equity, as are dividend-paying firms and firms with higher stock return volatilities. On the other hand, larger and more levered firms and firms with higher Tobin's Q, ROA, capital expenditure, cash holdings, and buy-and-hold excess returns over the previous year are more likely to issue seasoned equity. All these relations are statistically significant at the 5% level or better. Overall, it appears that equity issuing firms have better performance, lower risk, and more growth opportunities, and they have been using more debt capital and making more capital investments.[11]

In the second step of the Heckman procedure, we construct an inverse Mills' ratio (IMR) based on the coefficient estimates from the first-step probit model, and include the IMR as an additional explanatory variable in the gross spread regression. Panel B of Table 8 presents the estimation results. We find that the IMR has a significantly negative coefficient, consistent with the interpretation that firms with a higher ex ante probability of issuing equity are associated with lower underwriting fees. More importantly for our purpose, the irregularity-restatement dummy still has a significant and positive coefficient with similar magnitude to that in Table 3. Therefore,

[11] We also estimate the probit model only using firm-years associated with restatement firms. We find that restatement firms with higher leverage, better ROA, more capital expenditure, lower stock return volatilities, and higher stock returns in the previous year are significantly more likely to issue equity. These patterns are similar to those observed among all firms. Therefore, it does not appear to be the case that restatement firms resorting to equity financing are in dire financial conditions and in desperate needs for capital, and as a result, pay higher underwriting fees.

we conclude that our results are robust to correcting for potential self-selection bias arising from a firm's decision to issue equity.

A.6. Cross-sectional variation in the effect of restatements on underwriting fees

Having established the robustness of our finding that firms with previous restatements due to accounting irregularities pay higher underwriting fees in SEOs, we next explore potential cross-sectional variations in the effect of restatements to add more texture to our evidence.

We first examine whether the restatement effect varies with offering size. In their study of firm stock market liquidity and SEO issuance costs, Butler, Grullon, and Weston (2005) argue and show that the effect of liquidity is more pronounced for larger offerings, which require more marketing and placement efforts from underwriters. Similarly, we expect the effect of financial reporting integrity on underwriting costs to be greater for larger SEOs. To test this hypothesis, we create two indicator variables, one for SEOs whose relative size, defined as the number of shares offered divided by the pre-issue number of shares outstanding, is above sample median and the other for SEOs whose relative offer size is below sample median. In light of the evidence in Tables 3 and 4, we focus exclusively on irregularity restatements and interact the irregularity restatement dummy with each of the two indicator variables. We then re-estimate the gross spread regression with the two interaction terms as key explanatory variables. Results presented in column (1) of Table 9 support our conjecture. The significantly positive effect of irregularity restatements on underwriting fees is mostly concentrated in larger deals, while the effect, albeit still positive, is insignificant in smaller deals.

In addition to offering size, we also examine whether the restatement effect depends on how recent a restatement is relative to an offering. We expect the effect to be stronger immediately after restatements and weaken as more time lapses since the most recent restatement, because firms are found to take steps to improve their corporate governance practice that led to financial misreporting and to regain investor confidence (Farber (2005) and Cheng and Farber

(2008)). It is also possible that the longer a firm can avoid further reporting violations since its last transgression, the more trust it can regain from capital market participants in its financial statements. To the extent that the restatement effect may not vary over time in a linear fashion, we create two indicator variables, one for SEOs taking place within three years of the most recent restatements and the other for SEOs happening more than three years after the most recent restatements.[12] We then interact the irregularity restatement dummy with each of the two newly created indicator variables and include the interaction terms as our key explanatory variables in the gross spread regression. Results in column (2) of Table 9 show that investment banks charge significantly higher underwriting fees (by about 16%) only on SEOs happening within three years of a restatement. This is consistent with our prediction and suggests that the higher contracting costs faced by restatement firms indeed are more pronounced during the period immediately following restatements and lessen over time.

Finally, we directly examine whether restatement firms can restore credibility to their financial reporting and mitigate the increased contracting costs by making corporate governance improvements. Given the importance of board and audit committee independence in a firm's financial reporting process (Klein (2002)), for each irregularity-restatement issuer in our sample, we examine its proxy statements and measure (i) the change in the percentage of independent directors on its board from immediately prior to the restatement announcement to immediately prior to the SEO announcement and (ii) the percentage of audit committee members replaced from immediately prior to the restatement announcement to immediately prior to the SEO announcement.[13] We interact each of the two corporate governance improvement measures with the irregularity-restatement dummy and include the interaction term as an additional explanatory variable in the gross spread regression.

[12] Farber (2005) finds that fraud firms exhibit governance characteristics similar to or better than non-fraud firms three years after the fraud revelation.
[13] During our sample period, audit committees of most firms are fully independent.

Table 10 presents the regression results. In column (1), we find that the irregularity-restatement dummy itself continues to have a significant and positive coefficient, but its interaction with the change in board independence has a significantly negative coefficient, suggesting that increasing board independence can reduce the additional underwriting fees that restatement firms have to pay for their SEOs. It appears that reconstituting the audit committee has a similar effect on underwriting fees, evidenced by the significantly negative coefficient on the interaction between the irregularity-restatement dummy and the percentage of audit committee members replaced (see column (2)). However, the governance improvements are unlikely to completely eliminate the higher contracting costs imposed on restatement issuers. The change in the percentage of independent directors has a median of around 0.07 with an inter-quartile range of about 0.21, while the percentage of audit committee members replaced has a median of 0.45 with an inter-quartile range of 0.55. These numbers, combined with the magnitude of the coefficient estimates in Table 10, imply that a large majority of the restatement issuers still pay higher underwriting fees despite the post-restatement governance changes implemented.

B. The effect of restatements on underwriting syndicate size

In this section, we design an auxiliary test to the gross spread analysis and examine how past restatements by issuing firms impact the size of underwriting syndicates. Our hypothesis is that if a firm's prior financial misreporting tarnishes its financial reporting integrity and makes its equity offering unappealing to investors, the firm is likely to enlist the service of more underwriters in order to tap into a broader investor base through underwriters' connections and ensure the successful placement of its offering. Lead underwriters may also have the incentive to bring more investment banks into the underwriting syndicate to share the potentially heavier work load and greater risk associated with underwriting SEOs by firms with financial reporting transgressions.

To test this prediction, we examine both the number of lead underwriters and the number of all syndicate members in relation to issuer past restatements, and present the results in Table 11. The regression models are largely the same as those in Table 3, except that the dependent variable is the number of syndicate members in columns (1) and (2) and the number of lead underwriters in columns (3) and (4). We find that SEOs by firms with past restatements due to irregularities are underwritten by significantly larger syndicates with more lead managers than other SEOs. All else being equal, irregularity-restatement firms' SEOs on average have 0.893 more managers and 0.415 more lead underwriters. Both numbers are economically significant given that the average syndicate has about 4 underwriters and 1.4 lead managers. These results suggest that offerings by firms with irregularity-induced restatements require greater efforts and risk sharing by underwriters.

C. The effect of restatements on offering methods

In keeping with most of the SEO literature, our analysis thus far focuses on firm-commitment underwritten offerings that involve the conventional book-building process through which the issuers and underwriters gauge the interest of institutional investors and drum up demand for the new issues. Since the turn of the century, however, a new breed of SEOs that either bypass or significantly shorten the traditional book building process have been gaining popularity (Bartolotti, Megginson, and Smart (2008) and Gao and Ritter (2010)). These issues include bought deals, block trades, and accelerated book-built offers. Collectively, they are called accelerated offers.[14] Compared to conventional offers, accelerated offers are conducted by smaller underwriting syndicates, completed much more quickly, and associated with lower

[14] Block trades and bought deals are similar; in both cases, issuing companies sell shares directly to an investment bank at an auction-determined or negotiated price with little or no book-building process, and the investment bank will then resell the shares to institutional investors. Accelerated book-built offerings are similar to conventional book-built offerings in that underwriters gather price and demand information and form syndicates, but they are executed much more rapidly. Please see Bartolotti et al. (2008) for more detailed descriptions of these offering methods.

underwriting costs, since they do not require from underwriters as much due diligence, marketing, and placement efforts as conventional offerings do (Bartolotti et al. (2008)). Despite the speed and cost advantages, an accelerated offering is not suitable for all issues or issuers. Gao and Ritter (2010) examine the factors driving SEO firms' choice between the accelerated and conventional underwriting, and find that the accelerated underwriting is more common for smaller offerings and for issuers with less information asymmetry and more elastic demand curves for their stock.

To the extent that firms with past restatements face more questions about their financial reporting and weaker demand from investors, their SEOs would benefit from an extended book building process, which can generate higher investor interest by bridging the information gap between issuing firms and investors. Underwriters of restatement firms' offerings may also prefer the conventional book-building approach, as it gives them an opportunity to obtain more accurate price and demand information from potential investors to ensure a successful placement. Therefore, we predict that firms with past restatements are less likely to choose the accelerated underwriting for their offerings.

To test this hypothesis, we extract from SDC all seasoned equity offerings by U.S. companies from 1997 to 2008 that are designated as block trade, bought deal, or accelerated book built by SDC. After imposing the same selection criteria as those in the beginning of Section II, we end up with 471 accelerated offers. Merging these deals with the sample of 2,337 firm-commitment offers creates a sample of 2,808 SEOs. Using this combined sample, we estimate a probit model where the dependent variable is equal to one for accelerated offers and zero otherwise. Table 12 presents the marginal effects of explanatory variables from probit regressions. In column (1), the key explanatory variable is the restatement dummy, and it has a negative but insignificant marginal effect. In column (2), we replace the restatement dummy with the error dummy and the irregularity dummy. We find that the error dummy has an insignificant effect on an issuer's choice of offering method, while the marginal effect of the irregularity dummy on the probability of an accelerated offering is negative and statistically significant with a

p-value of 0.016. The irregularity dummy retains its significantly negative marginal effect when we drop the error dummy from the regression model in column (3). These results suggest that firms that restated due to irregularities are less likely to issue new shares in an accelerated offering. In economic terms, such restatements reduce the probability of an accelerated offering by about 5.7%, which is a meaningful effect since the unconditional probability of an accelerated offering is about 16%. In summary, the evidence from the probit model of offering method choices is consistent with the hypothesis that past restatements, in particular those caused by deliberate earnings manipulations, raise significant concerns about firms' financial reporting integrity that preclude them from taking advantage of faster and cheaper accelerated underwriting options for their SEOs.

With respect to control variables, their coefficient estimates are largely consistent with those found by Gao and Ritter (2010). Specifically, we find that issuers that are larger, have higher Tobin's Q, have more liquid stock, and are traded on the NYSE are more likely to choose the accelerated approach, while issuers with higher stock return volatility and better operating performance and issuers trying to raise more proceeds and sell a higher percentage of secondary shares in the offerings are more likely to use traditional book building to float their shares.

As a robustness check, we repeat our earlier analyses using the combined sample that includes both conventional and accelerated SEOs. All our results continue to hold.

D. The effect of restatements on SEO announcement returns

In this section we examine the effect of restatements on SEO announcement returns. Prior studies document negative stock market reactions to SEO announcements whose magnitude increases with the adverse selection problems between issuers and outside investors (Eckbo, Masulis, and Norli (2007)). Prior earnings restatements, especially those due to deliberate manipulations, are likely to exacerbate investor concerns about adverse selection by making a firm's financial reporting less trustworthy and increasing the uncertainty over its true value.

Therefore, we expect restatement firms to experience more negative abnormal returns upon SEO announcements.

For our analysis of announcement returns, we exclude offerings through shelf registrations. Shelf registrations allow an issuer to defer the equity offer until a much later date after shelf filings. Managers at the issuing firm can pick a date to offer shares within two years after the shelf filing date when they believe their company's stock is overvalued. As a result, there is little adverse selection problem around shelf filings. Consistent with this argument, Autore, Kumar, and Shome (2008) find that the average cumulative abnormal return (CAR) during the three-day window centered on the filing date for shelf offers is only -0.30% and not statistically different from zero. We have 1,228 non-shelf offers left after excluding SEOs through shelf registrations.

We calculate abnormal stock returns by subtracting the CRSP value-weighted market returns from a firm's daily returns.[15] We compute 3-day CARs during the window encompassed by event days (-1, +1), where event day 0 is the SEO announcement date. Studies on SEO announcement returns often use the SEO filing date as the announcement date. Kim and Purnanandam (2009) find that sometimes the initial announcement date in Factiva is different from the filing date recorded by SDC, but typically is off by no more than two trading days. To identify the correct announcement date, we use a correction procedure based on trading volume. Our assumption is that the trading volume immediately after the SEO announcement would be abnormally higher than the company's typical daily trading volume. Among the 5 trading days from 2 days before the filing date to 2 days after the filing date, we compare the date with the largest trading volume and the filing date. If they are different and the volume on the former date is more than twice the average daily volume over the previous 90 trading days, we select the date

[15] We prefer this approach over the market model approach because the post-restatement announcement abnormal return patterns could bias the coefficient estimates of the market model. Our results, however, are robust to using the abnormal returns estimated from the market model.

with the largest trading volume as the announcement date. Otherwise, we treat the filing date provided by SDC as the correct announcement date.

The mean (median) three-day CAR is -1.73% (-1.86%), both significantly different from zero with *p*-values less than 0.001. These statistics are also similar to those reported by Gao and Ritter (2010) and Kim and Purnanandam (2009). Table 13 presents the results from OLS regressions of announcement returns. The dependent variable is the three-day CAR over the event window (-1, +1) in percentage points. Our key independent variable in column (1) is the indicator for restatements. We find that it has a negative coefficient estimate that is insignificant. In column (2), we replace the restatement dummy variable with the error dummy and irregularity dummy. We find that the coefficient of the error dummy is insignificant, but the indicator for irregularity restatements has a coefficient of -3.108 that is significant with a *p*-value of 0.040. In column (3), we only include the irregularity dummy, and its coefficient barely changes in both magnitude and statistical significance from column (2). It appears that ceteris paribus, the announcement returns of SEOs by irregularity restatement firms on average are significantly lower by over 3%. This is substantial considering the typical SEO announcement returns. Overall, the evidence on announcement returns suggests that the market reacts more negatively to SEO announcements made by firms that intentionally misreported financial statements, adding to the higher issuance costs of these firms.

IV. Conclusion

We examine whether prior financial reporting violations affect the terms of underwriting contracts between firms and investment banks in SEOs. Financial misrepresentation undermines the credibility of a firm's future financial disclosure and reduces its appeal to potential capital providers. As a result, its stock offering requires greater due diligence, certification, marketing and placement efforts from underwriters. In response, investment banks demand higher gross spreads as compensation for the additional work and risk involved. Such an offering also entails

choosing a syndicate structure and an underwriting process that are conducive to creating more investor demand.

We find strong support for these conjectures. Specifically, firms that restated earnings due to deliberate manipulations subsequently pay higher underwriting fees (about 10-20% in relative terms or 50-100 basis points in absolute terms), and the relation is robust to controlling for issuing firm fixed-effects. The effect of restatements on underwriting fees is more pronounced for larger offerings, but declines as more time elapses without further reporting violations and as firms implement more corporate governance improvements. In addition, SEOs of restatement firms tend to be underwritten by larger syndicates with more lead managers through the traditional book building process rather than the faster and cheaper accelerated process. Compounding these costly features of underwriting contracts, we also find that the stock market reacts more negatively to SEO announcements of restatement firms.

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Table 1. Frequency of SEOs by offer year

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. To be included in the sample, an SEO has to satisfy the following criteria: it is a firm-commitment offer; the size of the offering is at least $10 million; the offer price is no less than $5; the proportion of secondary shares offered is less than 100%; the issuer has financial statement information available from Compustat and stock return data from CRSP. Rights issues, unit offerings, closed-end fund offerings, and simultaneous international offerings are also excluded.

Offer Year	Number of SEOs	Number of SEOs by restatement firms	Number of SEOs by firms that restated due to accounting errors	Number of SEOs by firms that restated due to intentional manipulation
1997	413	1	1	0
1998	214	2	2	0
1999	142	3	3	0
2000	137	3	2	1
2001	137	6	4	2
2002	157	11	9	2
2003	201	18	12	6
2004	252	34	28	6
2005	185	34	30	4
2006	188	32	27	5
2007	165	29	24	5
2008	146	29	20	9
Total	2337	202	162	40

Table 2. Summary Statistics

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. To be included in the sample, an SEO has to satisfy the following criteria: it is a firm-commitment offer; the size of the offering is at least $10 million; the offer price is no less than $5; the proportion of secondary shares offered is less than 100%; the issuer has financial statement information available from Compustat and stock return data from CRSP. Rights issues, unit offerings, closed-end fund offerings, and simultaneous international offerings are also excluded.

	Full sample (N=2337)			SEOs by non-restatement firms (N=2135)		SEOs by restatement firms (N=202)		SEOs by firms that restated due to error (N=162)		SEOs by firms that restated due to intentional manipulation (N=40)	
	Mean	Median	Std	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Spread	0.049	0.050	0.012	0.050	0.050	0.045	0.048	0.045	0.049	0.044	0.044
Offering size ($ mil)	170	80	589	145	77	442	116	363	106	761	176
Relative offer size	0.225	0.177	0.271	0.226	0.181	0.217	0.145	0.231	0.145	0.159	0.143
No. of managers	3.998	4	2.662	3.892	3	4.980	4	4.660	4	5.275	5
No. of lead managers	1.428	1	0.760	1.398	1	1.748	1	1.611	1	2.300	2
Lead manager rank	7.745	8	1.299	7.727	8	7.990	8.367	7.951	8	8.152	8.619
Total assets ($ mil)	8126	381	85642	5633	356	34481	870	21316	711	87803	2036
Market cap ($ mil)	1811	497	10661	1508	475	5013	750	3402	708	11536	1464
Leverage	0.315	0.302	0.258	0.312	0.296	0.347	0.344	0.349	0.348	0.335	0.335
Tobin's q	2.550	1.507	2.948	2.606	1.513	1.962	1.456	2.066	1.499	1.537	1.264
ROA	-0.030	0.023	0.219	-0.032	0.024	-0.002	0.021	-0.013	0.020	0.042	0.026
Stock return volatility (%)	3.204	2.851	1.858	3.232	2.889	2.914	2.604	2.939	2.624	2.810	2.570
Share turnover (%)	0.591	0.392	0.658	0.566	0.377	0.862	0.664	0.867	0.674	0.843	0.655

Table 3. Regression analyses of gross spreads

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering, regardless of whether the restatements are due to errors or irregularities. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions of other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in the first two regressions, while year and issuer fixed-effects are included in the third regression.

	(1) OLS	(2) OLS	(3) OLS
Restatement	-0.025		
	(0.479)		
Restatement due to error		-0.054	-0.086
		(0.188)	(0.345)
Restatement due to irregularity		0.099***	0.192**
		(0.002)	(0.030)
Log(Principal amount)	-0.026*	-0.026*	0.023
	(0.072)	(0.072)	(0.539)
Log(Total assets)	-0.078***	-0.079***	-0.107***
	(0.000)	(0.000)	(0.007)
Leverage	-0.001	0.002	0.067
	(0.983)	(0.970)	(0.588)
Tobin's q	-0.014***	-0.014***	-0.017**
	(0.000)	(0.000)	(0.034)
ROA	-0.029	-0.030	0.050
	(0.190)	(0.173)	(0.609)
Stock return volatility	0.012**	0.013**	-0.008
	(0.019)	(0.017)	(0.515)
Share turnover	-0.023*	-0.022*	-0.005
	(0.065)	(0.070)	(0.910)
NYSE listing	-0.066**	-0.064**	0.117
	(0.020)	(0.022)	(0.266)
Shelf registration	-0.059***	-0.059***	0.040
	(0.002)	(0.002)	(0.457)
Lead manager rank	-0.010	-0.009	-0.003
	(0.110)	(0.127)	(0.909)
Percentage of secondary shares	-0.026	-0.023	-0.017
	(0.273)	(0.325)	(0.815)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	No
Issuer fixed effects	No	No	Yes

Number of observations	2,337	2,337	2,337
Adjusted-R^2	0.274	0.276	0.282

Table 4. Matched-sample analysis of the effect of restatements on gross spreads

This table is based on a matched sample of 404 seasoned equity offerings that consist of 202 offerings by restatement firms and 202 offerings by non-restatement firms. For each restatement firm's SEO, a matching SEO by a non-restatement firm is selected according to the following criteria: (1) the matching SEO's offer date is between 1 year before and 1 year after the offer date of the restatement firm's SEO, (2) the non-restatement firm's size measured by total assets falls between 75% and 125% of the restatement firm's size, and (3) conditional on the first two conditions being met, the matching SEO's offer size measured by principal amount is closest to that of the restatement firm's SEO. Panels A-C present comparisons of issue size and issuer size between restatement SEOs and their matching offers. Panel D presents regressions of gross spreads based on the matched sample. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering, regardless of whether the restatements are due to errors or irregularities. In column (2), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions of other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included.

Panel A: Comparison between SEOs by restatement firms and their matching SEOs					
		(1) Restatement SEOs (N=202)	(2) Matching SEOs (N=202)	(1)-(2) Difference	*p*-value for tests in difference
Total Assets (in millions $)	Mean	34481	34559	-78	0.997
	Median	870	791	79	0.882
Principal Amount (in millions $)	Mean	442	338	104	0.435
	Median	116	117	-1	0.962
Panel B: Comparison between SEOs by "error" restatement firms and their matching SEOs					
		(1) Restatement SEOs (N=162)	(2) Matching SEOs (N=162)	(1)-(2) Difference	*p*-value for tests in difference
Total Assets (in millions $)	Mean	21316	21576	-260	0.895
	Median	711	726	-15	0.876
Principal Amount (in millions $)	Mean	363	275	88	0.511
	Median	106	108	-2	0.976
Panel C: Comparison between SEOs by "irregularity" restatement firms and their matching SEOs					
		(1) Restatement SEOs (N=40)	(2) Matching SEOs (N=40)	(1)-(2) Difference	*p*-value for tests in difference
Total Assets (in millions $)	Mean	87803	87138	665	0.991
	Median	2036	1643	393	0.881
Principal Amount (in millions $)	Mean	761	594	167	0.670
	Median	176	165	11	0.999

Panel D: OLS regressions of gross spreads using the matched samples		
	(1)	(2)
Restatement	-0.001	
	(0.975)	
Restatement due to error		-0.028
		(0.548)
Restatement due to irregularity		0.117**
		(0.039)
Log(Principal amount)	0.008	0.011
	(0.877)	(0.827)
Log(Total assets)	-0.088***	-0.096***
	(0.001)	(0.000)
Leverage	0.142	0.153
	(0.259)	(0.226)
Tobin's q	-0.018*	-0.019*
	(0.078)	(0.077)
ROA	-0.070	-0.084
	(0.313)	(0.251)
Stock return volatility	0.022	0.024
	(0.392)	(0.344)
Share turnover	-0.004	-0.002
	(0.903)	(0.959)
NYSE listing	-0.145*	-0.137*
	(0.064)	(0.074)
Shelf registration	-0.123***	-0.121***
	(0.003)	(0.004)
Lead manager rank	-0.019	-0.019
	(0.352)	(0.352)
Percentage of secondary shares	-0.031	-0.018
	(0.648)	(0.792)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	404	404
Adjusted-R^2	0.272	0.277

Table 5. Controlling for issuer corporate governance

The sample used for column (1) consists of 425 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have information on antitakeover provisions from IRRC. The sample used for column (2) consists of 365 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have information on board characteristics from IRRC. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to error	-0.117	-0.074
	(0.215)	(0.475)
Restatement due to irregularities	0.188**	0.278***
	(0.018)	(0.004)
GIM index	0.007	
	(0.440)	
Board Size		0.012
		(0.295)
Percentage of independent directors		0.196
		(0.241)
CEO/Chairman duality		0.037
		(0.471)
Log(Principal amount)	0.018	0.070
	(0.714)	(0.199)
Log(Total assets)	-0.120***	-0.144***
	(0.000)	(0.000)
Leverage	0.195	0.015
	(0.162)	(0.928)
Tobin's q	-0.066***	-0.077***
	(0.002)	(0.003)
ROA	-0.116	-0.005
	(0.580)	(0.987)
Stock return volatility	0.038	0.029
	(0.271)	(0.541)
Share turnover	-0.003	-0.061
	(0.944)	(0.345)
NYSE listing	-0.051	-0.045
	(0.496)	(0.656)
Shelf registration	-0.082	-0.053
	(0.165)	(0.440)
Lead manager rank	-0.026	-0.039
	(0.253)	(0.140)

Percentage of secondary shares	0.197	0.017
	(0.184)	(0.881)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	425	365
Adjusted-R^2	0.211	0.192

Table 6. Controlling for analyst forecast variables

The sample consists of 1,767 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have information on analyst forecast dispersion from I/B/E/S. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Analyst forecast dispersion is the standard deviation of analyst forecasts of current-fiscal-year earnings in the month before the SEO offer date, scaled by the stock price. Analyst coverage is the number of analysts issuing earnings forecasts in the month prior to the SEO offer date. Mean earnings forecast is the average analyst forecast of current-fiscal-year earnings in the month before the SEO, scaled by the book value of assets per share. Definitions of other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to error	-0.016	-0.040
	(0.688)	(0.406)
Restatement due to irregularities		0.072**
		(0.042)
Forecast dispersion	1.299***	1.287***
	(0.000)	(0.000)
Analyst coverage	-0.010**	-0.010**
	(0.027)	(0.031)
Mean earnings forecast	-0.015	-0.014
	(0.556)	(0.578)
Log(Principal amount)	-0.020	-0.020
	(0.263)	(0.258)
Log(Total assets)	-0.060***	-0.062***
	(0.000)	(0.000)
Leverage	-0.031	-0.030
	(0.512)	(0.535)
Tobin’s q	-0.011***	-0.011***
	(0.000)	(0.000)
ROA	-0.008	-0.008
	(0.820)	(0.814)
Stock return volatility	0.006	0.006
	(0.362)	(0.351)
Share turnover	-0.013	-0.012
	(0.397)	(0.425)
NYSE listing	-0.074**	-0.071**
	(0.034)	(0.039)
Shelf registration	-0.045*	-0.045*
	(0.075)	(0.075)
Lead manager rank	-0.007	-0.007
	(0.440)	(0.440)

Percentage of secondary shares	-0.019	-0.018
	(0.485)	(0.510)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	1,767	1,767
Adjusted-R^2	0.277	0.278

Table 7. Controlling for accruals quality measures

The sample in column (1) consists of 1,254 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have necessary data for estimating the pre-SEO abnormal accruals based on the modified Jones (1991) model. The sample in column (2) consists of 1,162 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008 that have necessary data for estimating the Dechow-Dichev (2002) accruals quality measure. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to error	-0.033	-0.073
	(0.468)	(0.111)
Restatement due to irregularities	0.155***	0.085**
	(0.000)	(0.031)
Absolute value of discretionary accruals	0.033*	
	(0.060)	
Dechow-Dichev accruals quality measure		0.669***
		(0.000)
Log(Principal amount)	-0.019	-0.047**
	(0.304)	(0.025)
Log(Total assets)	-0.109***	-0.062***
	(0.000)	(0.000)
Leverage	0.088*	0.055
	(0.099)	(0.321)
Tobin's q	-0.017***	-0.021***
	(0.000)	(0.000)
ROA	-0.012	0.005
	(0.574)	(0.901)
Stock return volatility	-0.004	0.028***
	(0.606)	(0.002)
Share turnover	-0.020	-0.019
	(0.165)	(0.190)
NYSE listing	-0.061**	-0.098***
	(0.031)	(0.000)
Shelf registration	-0.004	-0.086***
	(0.868)	(0.000)
Lead manager rank	0.005	0.002
	(0.429)	(0.848)
Percentage of secondary shares	-0.004	0.007
	(0.861)	(0.860)

Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	1,254	1,162
Adjusted-R^2	0.398	0.294

Table 8. Correcting for self-selection bias using the Heckman (1978) two-step procedure

Panel A presents the first-stage probit analysis of SEO issuance decision based on 74,910 firm-year observations from the Compustat universe during the period of 1997 to 2008. The dependent variable is equal to one if a firm issues SEO in a given year and zero otherwise. Panel B presents the second-stage OLS regression of gross spreads based on a sample of 2,337 SEOs from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. IMR is the inverse Mills' ratio constructed based on the coefficient estimates of the probit model in Panel A. Definitions of other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

Panel A: First-stage probit regression of SEO issuance decisions	
Restatement due to error	0.018
	(0.605)
Restatement due to irregularities	-0.138 **
	(0.037)
Log(Total assets)	0.026***
	(0.000)
Leverage	0.350***
	(0.000)
Tobin's q	0.008***
	(0.000)
ROA	0.073***
	(0.000)
Stock return volatility	-0.062***
	(0.000)
Buy-and-hold market-adjusted return during the past year	0.101***
	(0.000)
Dividend paying status (dummy)	-0.101***
	(0.000)
Cash/Total assets	0.264***
	(0.000)
Capital expenditure/Total assets	0.484***
	(0.000)
Year fixed effects	Yes
Industry fixed effects	Yes
Number of observations	74,910
Pseudo-R^2	0.060

Panel B: Second-stage OLS regression of gross spreads	
Restatement due to irregularities	0.102***
	(0.001)
IMR	-0.223**
	(0.026)
Log(Principal amount)	-0.023
	(0.112)
Log(Total assets)	-0.080***
	(0.000)
Leverage	0.018
	(0.655)
Tobin's q	-0.014***
	(0.000)
ROA	-0.033
	(0.145)
Stock return volatility	0.012**
	(0.028)
Share turnover	-0.022*
	(0.067)
NYSE listing	-0.066**
	(0.020)
Shelf registration	-0.059***
	(0.002)
Lead manager rank	-0.009
	(0.118)
Percentage of secondary shares	-0.024
	(0.315)
Year fixed effects	Yes
Industry fixed effects	Yes
Number of observations	2,337
Adjusted-R^2	0.275

Table 9. The effect of restatements on gross spreads – Cross-sectional variation along offering size and time lapse since restatement

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Irregularity restatement * Indicator for SEOs with relative offer size above sample median	0.149***	
	(0.002)	
Irregularity restatement * Indicator for SEOs with relative offer size below sample median	0.053	
	(0.160)	
Irregularity restatement * Indicator for restatements within the past 3 years		0.157***
		(0.001)
Irregularity restatement * Indicator for restatements over 3 years ago		0.034
		(0.351)
Log(Principal amount)	-0.034**	-0.034**
	(0.024)	(0.024)
Log(Total assets)	-0.075***	-0.075***
	(0.000)	(0.000)
Leverage	0.001	0.001
	(0.972)	(0.977)
Tobin's q	-0.014***	-0.014***
	(0.000)	(0.000)
ROA	-0.055**	-0.054**
	(0.014)	(0.015)
Stock return volatility	0.008	0.008
	(0.172)	(0.175)
Share turnover	-0.020	-0.020
	(0.102)	(0.102)
NYSE listing	-0.064**	-0.064**
	(0.015)	(0.016)
Shelf registration	-0.061***	-0.062***
	(0.001)	(0.001)
Lead manager rank	-0.012**	-0.012**
	(0.042)	(0.042)
Percentage of secondary shares	-0.026	-0.026
	(0.259)	(0.246)
Year fixed effects	Yes	Yes

Industry fixed effects	Yes	Yes
Number of observations	2,337	2,337
Adjusted-R^2	0.275	0.276

Table 10. The effect of restatements on gross spreads – Cross-sectional variation along corporate governance improvements

The sample consists of 2,337 firm-commitment underwritten seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the log transformation of gross spread per share as a percent of the offer price. Definitions of explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS
Restatement due to irregularity	0.147***	0.168***
	(0.000)	(0.000)
Irregularity restatement * Change in the percentage of independent directors	-0.281**	
	(0.029)	
Irregularity restatement * Proportion of audit committee members who departed after restatement		-0.160*
		(0.052)
Log(Principal amount)	-0.026*	-0.026*
	(0.070)	(0.072)
Log(Total assets)	-0.079***	-0.079***
	(0.000)	(0.000)
Leverage	0.002	0.002
	(0.966)	(0.955)
Tobin's q	-0.014***	-0.014***
	(0.000)	(0.000)
ROA	-0.032	-0.033
	(0.149)	(0.148)
Stock return volatility	0.012**	0.012**
	(0.024)	(0.021)
Share turnover	-0.023*	-0.023*
	(0.058)	(0.060)
NYSE listing	-0.065**	-0.065**
	(0.022)	(0.022)
Shelf registration	-0.060***	-0.060***
	(0.001)	(0.001)
Lead manager rank	-0.010	-0.010
	(0.114)	(0.112)
Percentage of secondary shares	-0.021	-0.021
	(0.386)	(0.392)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Number of observations	2,337	2,337
Adjusted-R^2	0.275	0.275

Table 11. Regression analyses of underwriting syndicate size

The sample consists of 2,337 firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable in column (1) and (2) is the number of all managers in an underwriting syndicate. The dependent variable in column (3) and (4) is the number of lead managers in an underwriting syndicate. The key explanatory variable in column (1) and (3) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (4), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions for other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	Number of all managers		Number of lead managers	
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Restatement	0.059		-0.019	
	(0.814)		(0.776)	
Restatement due to error		-0.140		-0.122*
		(0.610)		(0.069)
Restatement due to irregularity		0.893*		0.414**
		(0.081)		(0.034)
Log(Principal amount)	1.372***	1.372***	0.196***	0.196***
	(0.000)	(0.000)	(0.000)	(0.000)
Log(Total assets)	-0.069	-0.080	0.038*	0.032*
	(0.416)	(0.340)	(0.053)	(0.090)
Leverage	-0.105	-0.089	0.124*	0.132**
	(0.679)	(0.727)	(0.056)	(0.039)
Tobin's q	0.002	0.002	-0.010**	-0.010**
	(0.908)	(0.905)	(0.019)	(0.020)
ROA	-0.066	-0.075	-0.030	-0.035
	(0.711)	(0.670)	(0.614)	(0.555)
Stock return volatility	-0.092*	-0.091*	0.021*	0.022*
	(0.069)	(0.073)	(0.095)	(0.082)
Share turnover	-0.109	-0.106	-0.047	-0.046
	(0.421)	(0.432)	(0.144)	(0.150)
NYSE listing	0.298**	0.308**	0.137***	0.143***
	(0.039)	(0.031)	(0.002)	(0.001)
Shelf registration	-0.107	-0.108	-0.002	-0.002
	(0.339)	(0.343)	(0.955)	(0.954)
Percentage of secondary shares	0.103	0.121	0.107*	0.116**
	(0.554)	(0.489)	(0.054)	(0.036)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Number of observations	2,337	2,337	2,337	2,337
Adjusted-R2	0.348	0.350	0.316	0.322

Table 12. Marginal effects from probit analyses of offering method choices

The sample consists of 2,337 firm-commitment seasoned equity offerings (SEOs) and 471 accelerated SEOs made by U.S. firms between 1997 and 2008. The dependent variable is equal to one for accelerated offerings and zero otherwise. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions for other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) Probit	(2) Probit	(3) Probit
Restatement	-0.025		
	(0.077)		
Restatement due to error		-0.016	
		(0.342)	
Restatement due to irregularity		-0.057**	-0.056**
		(0.000)	(0.000)
Log(Principal amount)	-0.049***	-0.049***	-0.049***
	(0.000)	(0.000)	(0.000)
Log(Total assets)	0.034***	0.035***	0.035***
	(0.000)	(0.000)	(0.000)
Leverage	0.004	0.004	0.004
	(0.866)	(0.881)	(0.870)
Tobin's q	0.007***	0.007***	0.007***
	(0.003)	(0.003)	(0.002)
ROA	-0.067**	-0.066**	-0.067**
	(0.020)	(0.023)	(0.022)
Stock return volatility	-0.015**	-0.015**	-0.015**
	(0.014)	(0.013)	(0.013)
Share turnover	0.025***	0.025***	0.025***
	(0.002)	(0.002)	(0.003)
NYSE listing	0.058***	0.057***	0.056***
	(0.001)	(0.001)	(0.001)
Percentage of secondary shares	-0.164***	-0.165***	-0.164***
	(0.000)	(0.000)	(0.000)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Number of observations	2,808	2,808	2,808
Pesudo-R^2	0.222	0.222	0.221

Table 13. Regression analyses of abnormal returns around SEO announcement dates

The sample consists of 1,228 non-shelf firm-commitment seasoned equity offerings (SEOs) by U.S. firms from 1997 to 2008. The dependent variable is the issuer's 3-day cumulative abnormal return in percentage points around the SEO announcement date. The key explanatory variable in column (1) is an indicator that is equal to one for SEOs by firms that have restated earnings at the time of the offering. In column (2) and (3), the restatement dummy is replaced by an indicator for restatements due to errors (i.e. unintentional misstatements) and an indicator for restatements due to irregularities (i.e. deliberate misreporting). Definitions for other explanatory variables are in Appendix A. In parentheses are *p*-values based on standard errors adjusted for heteroskedasticity (White (1980)) and issuer clustering. ***, **, and * stand for statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively. Year and industry fixed effects are included in all regressions.

	(1) OLS	(2) OLS	(3) OLS
Restatement	-0.938		
	(0.335)		
Restatement due to error		-0.496	
		(0.654)	
Restatement due to irregularity		-3.108**	-3.068**
		(0.040)	(0.042)
Log(Principal amount)	0.379	0.386	0.385
	(0.364)	(0.356)	(0.357)
Log(Total assets)	-0.048	-0.043	-0.042
	(0.856)	(0.872)	(0.876)
Leverage	0.360	0.358	0.345
	(0.755)	(0.757)	(0.766)
Tobin's q	0.027	0.025	0.026
	(0.828)	(0.839)	(0.834)
ROA	1.755	1.773	1.768
	(0.332)	(0.328)	(0.329)
Stock return volatility	0.263	0.266	0.264
	(0.237)	(0.232)	(0.236)
NYSE listing	0.118	0.111	0.107
	(0.835)	(0.845)	(0.850)
Lead manager rank	0.100	0.098	0.096
	(0.607)	(0.616)	(0.621)
Percentage of secondary shares	-1.950**	-1.978**	-1.968**
	(0.040)	(0.037)	(0.038)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Number of observations	1,228	1,228	1,228
Adjusted-R^2	0.001	0.001	0.001

Appendix A: Variable definitions

Variable	Definition
Restatement	Dummy variable: 1 for firms that restated earnings prior to the SEO, 0 otherwise.
Restatement due to errors	Dummy variable: 1 for restatements due to unintentional errors, 0 otherwise.
Restatement due to irregularities	Dummy variable: 1 for restatements due to intentional manipulations, 0 otherwise.
Gross spread	Underwriting fee per share divided by the SEO offer price.
CAR(-1,+1)	Three-day cumulative abnormal return (in percentage) surrounding the SEO announcement calculated by subtracting the CRSP value-weighted returns from a firm's daily returns.
Offer size	Log of principal amount (in $ mil) offered.
Relative offer size	Number of shares offered divided by number of shares outstanding
Shelf registrations	Dummy variable: 1 for shelf offers, 0 otherwise.
Lead manager reputation	The Carter and Manaster (1990) ranking updated by Jay Ritter.
Firm size	Log of book value of total assets (data6)
Tobin's Q	Market value of assets over book value of assets: (data6-data60+data25*data199)/data6
Leverage	Book value of debts (data34+data9) over book value of assets (data6)
ROA	Net income (data 172) over book value of assets (data 6)
Share turnover	The ratio of the average daily trading volume during the 250 trading days prior to the offer date over existing shares outstanding.
Stock return volatility	The standard deviation of daily stock returns during the 250 trading days prior to the offer date.
NYSE listing	Dummy variable: 1 for firms listed on the NYSE, 0 otherwise.

Appendix B. Construction of performance-adjusted discretionary accruals

We follow the prior literature and estimate discretionary accruals using a modified Jones (1991) model specified as follows:

$$TA_{it}/A_{it-1} = \beta_1 \times (1/A_{it-1}) + \beta_2 \times [(\Delta SALES_{it} - \Delta REC_{it})/A_{it-1}] + \beta_3 \times (PPE_{it}/A_{it-1}) + e_{it},$$

where TA_{it} is firm i's total accruals in year t, computed using the statement of cash flows information as the difference between earnings before extraordinary items and discontinued operations (Compustat data 123) and operating cash flows from continuing operations (data 308 – data 124). Hribar and Collins (2002) show that accruals estimated this way are more accurate than those estimated based on successive balance sheets.[16] A_{it-1} is the book value of total assets (data 6) at the beginning of year t, $\Delta SALES_{it}$ is the change in sales (data 12) during year t, ΔREC_{it} is the change in accounts receivable (data 2) during year t, and PPE_{it} is the book value of property, plant, and equipment (data 7) in year t.

We estimate the modified Jones model cross-sectionally using all Compustat firms for each year and Fama-French 48-industry cohort that has at least 10 observations. The modified-Jones model discretionary accruals are simply the residuals from the regressions. Kothari, Leone, and Wasley (2005) show that performance can be correlated with the discretionary accruals estimated from the variants of the Jones model and the reliability of inferences can be enhanced by using performance-matched discretionary accruals. For each company in our sample, we select a control firm in the same Fama-French industry with the closest return on assets (ROA) computed as the ratio of net income (data 172) over the book value of total assets (data 6) at the end of the pre-SEO fiscal year. The performance-matched discretionary accruals is defined as the difference between the sample firm's modified-Jones model discretionary accruals and the matched firm's modified-Jones model discretionary accruals.

[16] Our results are robust to using accruals estimated from balance sheet data.