

Auditor Specialization and the Cost of Public Debt ^{*}

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Abstract

This paper investigates if the firms' choice of industry audit specialists can lower the cost of debt incurred when accessing the public debt market. The industry-specific knowledge that these specialists possess is likely to enhance the accuracy and the quality of the financial statements audited. We expect lenders to require less price protection when auditors significantly contribute in reducing the information asymmetry associated with the borrowers' financial position. Using a large sample of bond issues in the U.S., we find evidence that credit agencies and bond investors value the advantage of industry audit specialists. Firms that hire industry audit specialists receive better credit ratings and pay significantly lower yields when issuing bond securities.

Key Words: Industry Audit Specialist (IAS), Credit Rating, Credit Spread

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1. Introduction

An audit is an independent evaluation of a firm's financial statements to ensure that they are free from any material errors inconsistent with the generally accepted accounting rules. A competent and professional auditor, especially one that possesses industry specific knowledge, provides investors with a "cosy cushion" to sleep over the intentional or unintentional mistakes a management team might make in the process of preparing the financial statements. Auditors who are industry specialists are generally associated with higher quality audits (e.g., Solomon et al 1999, Hogan and Jeter 1999) and enhanced disclosures.¹ If the choice of an audit firm could credibly signal management's confidence with respect to the quality of the financial statements, managers could bond themselves to an independent specialist auditor. Such an external monitor could help reduce the agency costs arising from the separation of ownership and control or from conflicts of interest between equity holders and debtholders (e.g., Jensen and Meckling 1976). Our empirical investigation is intended to probe that the choice of industry auditor specialists plays a relevant role in mitigating agency costs of debt that result when firms raise public debt.

Prior research has documented abundant evidence that Big-6 auditors earn a brand name premium on audit fees for providing high-quality audits (Palmrose 1986, Simon and Francis 1988, etc). However, Craswell, Francis and Taylor (1995) point out that there exists an industry-specific premium, beyond the general brand name premium, on audit fees generated by the investment in industry specialization by a subset of big accounting firms. According to their analysis of Australian industries with audit specialists, specialized Big-8 auditors obtain on average a premium of 34%

¹ Dunn and Mayhew (2004) find that industry auditor specialization is associated with better firm disclosures as measured by analysts' evaluations of disclosure quality.

on audit fees over non-specialized Big-8 auditors. This result is due to the notion that the complexity of auditing tasks varies across industries and certain industries require specific knowledge to assess the financial statements. For example, as Craswell et al (1995) point out, the natural resources industry has unique accounting problems with respect to the valuation of mineral or oil reserves, income determination and complex forward sales and hedging contracts. Multi-period contracting produces accounting problems relating to cost capitalization and income recognition that are present in the auditing of the financial statements of building suppliers and engineering firms. Also, financial institutions have complicated contracts for financial instruments and derivatives. These contracts are subject to special regulatory accounting rules and require sophisticated auditors to prepare the audits. Further, financial institutions are involved in complex investment activities that sometimes are not even reflected on the balance sheet. Big auditors who develop industry-specific accounting knowledge are thus able to provide a higher level of audit assurance than non-specialized auditors and that could potentially provide incremental benefits to the users of the financial statements.

The strong industry-specific knowledge of the industry audit specialists is expected to contribute to high quality audits and more accurate financial information.² If debt providers value the high quality financial statements certified by industry audit specialists, they will be willing to sacrifice a portion of their required return on firms employing industry audit specialists. In this paper, we test if the choice of industry audit specialists can reduce the cost of debt for firms issuing new bonds by examining whether auditor specialization among Big 4/5 auditors is taken into account by credit

² In sensitivity analyses, we validate this claim by investigating the association between industry audit specialists and the accounting and governance risks of firms that hire industry audit specialists.

agencies and bondholders. Our study is motivated by theoretical research on the task of auditors and the pricing of debt instruments.

The theoretical model developed by Caplan and Kirschenheiter (2004) discusses two important roles of auditors which are relevant to our setting: a verification role and an interpretation role. Basic auditors only fulfil the verification role, which is to certify the validity of financial statements in accordance with bright-line accounting standards. Expert auditors not only achieve the task of the basic auditors, but also play an interpretation role: when accounting standards are not bright-line, they make relatively fair judgements over the rising accounting issues and ensure that the financial statements are more precise and include more relevant information for investors than the financial statements audited by basic auditors. Debtholders favour accurate accounting information, because imprecise accounting information increases the uncertainty in estimating the value of debt issuers' assets. Indeed, Duffie and Lando (2001) show that imperfect accounting information increases default risk. They argue that imprecise information has important implications for the level and shape of the term structure of credit spreads. With perfect information, credit spreads are zero at the time of maturity, while with imperfect information, credit spreads are strictly positive at the time of maturity because debtholders are uncertain about how close is the value of issuers' assets to the trigger level of default. Hence, from a theoretical perspective, debtholders should appreciate the higher level of accuracy in financial statements and accept a lower yield to maturity at the time when the debt is issued by firms employing these industry specialist auditors.

Theoretical insights on a particular set of debtholders, bondholders, suggest that the role of industry audit specialists is more important in the public debt market.

Banks, by virtue of their exclusive relationship with the borrower, have access to private information about borrowers not available to bondholders that decreases adverse selection and moral hazard problems (e.g., Leland and Pyle 1977, Diamond 1984). Bondholders only have access to publicly available information thus they rely on financial statements to provide a credible, accurate and timely firm specific information set which helps them address agency problems. Industry audit specialists potentially enhance these aspects of the financial statements and thus facilitate lower contracting costs with bondholders.³ Ex ante, they can lower information acquisition costs to bondholders by decreasing the information asymmetry through more comprehensive and higher quality information about the credit quality of the borrower. Ex post, they can contribute by not only providing and certifying more relevant credit specific information that helps with monitoring but by also improving on the timeliness of the information that will allow bondholders to act more quickly if credit problems start developing.

It is still an open empirical question whether bond investors or other readers of financial statements price the high level of auditing quality produced by industry audit specialists when they value the corporate public debt issued by firms that hire these auditors. Anecdotal evidence indicates that rating agencies are seeking increasing interaction with independent auditors.⁴ Furthermore, both the equity and bond markets seem to understand the role of prestigious public accounting firms in providing credible financial statements. Beatty (1989) and Copley and Douthett (2002) demonstrate that high-quality audits by big auditors tend to mitigate the uncertainty in

³ Bondholders usually have a dispersed ownership in a bond issue which makes information acquisition and monitoring activities very costly in relative terms for the marginal bond investor. This dispersed ownership is also fuelling a free rider problem where the individual bond investor relies on others for these activities.

new equity issues and therefore help to reduce the underpricing of IPOs. Menon and Williams (1991) document an increase in credible auditors before IPOs. Pittman and Fortin (2004) and Fortin (2007) show that hiring a Big-6 auditor lowers the cost of debt for a small sample of young public firms as well as private firms.

Overall, given the existing evidence that investors recognize big accounting firms' capability of providing high quality financial statements, one would expect that auditor industry specialization within the set of big auditors could further alleviate the uncertainty in evaluating the value and quality of firms' assets. Moreover, this effect should be stronger for firms that issue new bonds. That is because bond investors in the primary bond market have to rely solely on the bond prospectus and the public financial statements when they make the investment decision. While the quality of the information provided is guaranteed by auditors, one would expect that industry audit specialists are more credible and better able to provide informed opinions.

We use a large sample of new bond issues in the U.S. and focus only on companies audited by big auditors to analyze the effect of hiring industry audit specialists on bond credit spreads⁵ and credit ratings granted by Standard & Poor's and Moody's. We find evidence that industry audit specialists can help lower the cost of debt for firms issuing bonds in the primary market: rating agencies provide better credit ratings and bondholders demand lower interest rates when borrowing firms hire industry audit specialists. In fact, credit ratings and credit spreads are reduced by about two notches and just over 37 basis points respectively on average for firms hiring industry audit specialists in our sample. This result is obtained after controlling for relevant firm and bond characteristics that affect both the credit ratings or the

⁴ For example, in October 2002 Standard & Poors, a major rating agency, hired its first chief accountant, a former Ernst & Young partner, to facilitate its communication with the audit industry.

credit spreads. The results are robust and consistent across various specifications such as (1) firm samples where the industry specialization of the auditor is expected to be relatively more important (2) a specialist auditor changes test and (3) tests that control for self-selection bias using alternative econometric techniques. These latter tests are important since firms' choice of an auditor specialist could potentially introduce a bias in the coefficient estimates due to endogeneity. Across all tests, we use OLS regressions as the main estimation method but, as a robustness check, ordered logistic regressions are used for the credit rating sample. The results continue to be robust to this alternative estimation method (they are actually stronger).

Since auditors' industry specialization is inherently unobservable we use several empirical measures based on the sales and total assets of the auditors' clients. We identify industry audit specialists by following the approach taken by Mayhew and Wilkins (2003) and classify an auditor as an industry audit specialist if it has the largest market share based on its clients' sales (or total assets) and its share is at least 10% higher than that of any other auditor within the industry.⁶

The paper contributes to the literature in several ways. First, empirical evidence on the role of auditors in bond market is scarce. Although Pittman and Fortin (2004) look at the role of big auditors in reducing the interest rate for firms that became public recently (without providing evidence on the role of industry specialization), the interest rate proxy they use tends to be a very noisy proxy for the cost of debt.⁷ An exception in the bond market is a paper by Mansi, Maxwell and Miller (2004). They examine the influence of big auditors and auditors' tenure on the

⁵ The credit spread is the difference between the yield of the matched treasury issue with similar maturity and coupon and the issue's offering yield.

⁶ We use alternative cut-offs such as 5% or 15% and the results are similar.

⁷ We discuss in great detail the major problems associated with the interest rate measure used by Pitman and Fortin (2004) in Section 2.1.

cost of debt financing and find that auditor quality and tenure are negatively and significantly related to the cost of debt. Dhaliwal, Gleason, Heitzman and Melendrez (2009) document a positive association between non-audit fees and the cost of debt. Nevertheless, they have neglected the role of industry audit specialists as a subset of big auditors in bond market. By analyzing the impact of industry audit specialists on the cost of debt, this paper advances our understanding of the role of audit quality related to *industry skills* in the bond market.

Second, notwithstanding the large extant literature on industry audit specialists, this line of research has mainly focused on whether industry specialists perform higher quality audits than nonspecialists and whether they earn a premium on audit fees by offering industry-specific auditing skills (Craswell et al 1995; Hogan and Jeter 1999, Solomon et al 1999, Defond, Francis and Wong 2000, Gramling and Stone 2001; Balsam, Krishnan and Yang 2003, Krishnan 2003, Myers, Myers and Omer 2003, Houghton, Dolley, Jubb, Monroe and Hay 2005, Jenkins, Kane and Velury 2006, Gul, Fung and Jaggi 2007, Kwon, Lim and Tan 2007, Lim and Tan 2008, Cahan, Godfrey, Hamilton and Jeter 2008). For example, Balsam, Krishnan and Yang (2003) document that hiring an industry audit specialist can discipline manager's earnings management behaviour. Consistent with our hypothesis, Almutairi, Dunn, and Skantz (2009) also show that firms hiring industry audit specialists suffer less from information asymmetry proxied by a firm's bid-ask spread. Ahmed, Rasmussen, Tse (2007) provide evidence showing that industry audit specialists decrease the cost of equity after controlling for firms' endogenous choice of industry audit specialists. Also, Fernando, Elder, Abdebl-Meguid (2008) use the PEG approach developed by Easton (2004) to calculate the ex-ante cost of equity capital and find that the effect of industry audit specialists on the cost of equity capital is stronger for small client firms.

Finally, Li and Wang (2008) show that firms which hire city-level industry audit specialists have a lower cost of equity. We add to this developing literature by documenting firm specific debt financing benefits of auditor specialization that potentially provide a supplementary justification for the higher fees charged by these auditors.

The closest paper to ours is a recent working paper by Ahmed, Rasmussen, Tse (2008) that studies the impact of industry audit specialists on the cost of capital and the substitutability of industry audit specialists to alternative monitoring mechanisms. Although mainly conducting analyses on the role of industry audit specialists in equity markets, they also have additional tests in debt markets. Our paper differentiates from theirs in three major ways. First, we focus on the primary bond market and use a more direct proxy for the cost of debt, namely, the bond yield spreads in addition to the credit ratings received by the bonds *at issuance*. They only use S&P's senior long-term debt ratings from Compustat or the interest expense, and, as a result, it is not clear whether they are capturing the impact of industry audit specialists in private or public debt markets. Moreover, ratings in Compustat (which are usually not updated historically and are missing) suffer from a lagged information problem. Rating agencies' stated aim is to maintain rating stability not to reflect timely the credit relevant information. Second, we validate the enhanced role of industry audit specialists with regard to the quality of financial statements using the Accounting and Governance (AGR) scores provided by Audit Integrity. That provides a solid ground for investigating the effect of industry audit specialists on the cost of public debt. Third, we not only look at changes of industry audit specialists, but also use endogenous switching regressions to control for the self-selection of firms that choose specialist auditors.

The rest of the paper is organized as follows. Section 2 describes the empirical framework, variable definitions, the sample selection and basic descriptive statistics. The main results are presented in Section 3. Section 4 presents sensitivity tests. Section 5 concludes the paper.

2. Empirical Framework and Data

2.1. Variable Measurement and Empirical Framework

Industry audit specialists are auditors that possess strong industry-specific knowledge of financial statements and can provide high quality audits. Managers have incentives to reduce information asymmetry between them and other stakeholders in the firm by bonding themselves to these first-tier auditors. Consequently, the identification of industry audit specialists is crucial to our analyses. We start with the assumption that the circle of business is small and information spreads fast. Once auditors are recognized as experts in a particular industry their reputation should attract more clients over time. As a result, we hypothesize that industry audit specialists are the ones that have the largest market share in an industry. Following Mayhew and Wilkins (2003), we calculate each auditor's market share in an industry as the sum of its clients' sales divided by total sales volume in the industry, which can be expressed as:

$$Market\ Share_{jk} = \frac{\sum_i^I Sales_{ijk}}{\sum_k^K \sum_i^I Sales_{ijk}}$$

Where

i is an index of client firms;

k is an index of auditors;

j is an index of industries.

This measure captures the aggregated level of importance of an auditor's clients and, in turn, reflects whether the auditor's skills are well recognized in an industry. A true leader will be able to outwin his competitors by a large margin. Therefore, we assign an auditor as the industry audit specialist if his market share, based on the above measure, is the largest in the industry and outpaces the rest of auditors by at least 10%. One might argue that 10% is an arbitrary cut-off and it could vary across industries, however, we are able to show in reported sensitivity tests that choosing a 15% cut-off point, the top 2 audit specialists, or other industry classifications does not alter our results. Extant literature also assigns the industry audit specialists based on the relative importance of a particular industry for an auditor, namely, the portfolio share approach. Nevertheless, Neal and Riley (2004) point out that "there are certain settings in which only the market share measure of specialization appears appropriate", in particular, in circumstances that the focus of the analysis is on the actions of the audit clients, such as the client's decision to hire or dismiss a specialist. As an example, they argue that a bank's decision to hire a specialist is unlikely to depend on the auditor's portfolios of high-technology clients and the bank would only care if the auditor has expertise in auditing banks. Precisely because our analyses are conducted on clients' choices of the industry audit specialists, we employ only the market share approach.

As for the cost of debt, we use credit ratings at the time of bonds' issuance and bond yield spreads which are superior to the interest expense proxy used by prior

studies.⁸ Credit ratings at issuance provide independent professional assessments of the credit risk of a bond issue to various types of market participants, including potential bond investors. In principle, bondholders use the credit ratings at issuance to assess the default risk and make investment decisions. Moreover, institutional bond investors, such as mutual funds, and pension funds, also depend on credit ratings to meet regulatory requirements of maximum levels of credit risk for their bond investments. Therefore, credit ratings are a prime source of *ex ante* information on issuers' repayment ability and are directly linked to the rate of return required by the debt investors. Although rating agencies are known to assign ratings based on lagged financial information, our focus of new bond issues in this paper partially alleviates this problem since the ratings of these new bond issues are expected to be based on very recent accounting information and analyses. The main advantage of using credit ratings at issuance as a proxy for the cost of debt is that this measure potentially incorporates private information collected by the rating agency. It also reflects borrower-specific characteristics which go beyond the features attached to a particular bond issue that receives the rating.

To capture a more direct cost of debt demanded by investors, we also use bond yield spreads, constructed as the difference between bond offering yields and matched Treasury Bills' yields with the same duration and similar coupon as the bond issue.

⁸ Several characteristics of the interest rate measure from Compustat introduce significant measurement problems with respect to the cost of debt. First, the interest expense field pools together bank debt with public debt. As we argue in the introduction, banks rely less on auditors since they have access to private information which is not reflected in the public financial statements. Second, interest expense pools together the cost of debt with different maturities and security features. Debt securities cannot be pooled easily because they are not homogenous. Pooling would be possible only if one controls for these features in the empirical tests. Third, the interest expense field from Compustat includes other items that have nothing to do with the cost of debt such as amortization of expenses associated with debt issuance (e.g., underwriting fees, advertising costs, and brokerage costs), interest expenses associated with deferred compensation and tax settlements, factoring charges, etc. Finally, the interest expense is not adjusted for treasuries thus the measure moves with the interest rate environment / macroeconomic conditions which may create spurious correlations.

The match with Treasury Bills' yields integrates the influence of business cycles on the corporate bond market. We view this credit spread as the cost of debt formed by the perception of bond investors. Bond investors decide the offering yield of new bond issues resting on their research of issuers' financial status, issue specifications, macroeconomic movements as well as the professional opinions offered by credit agencies. We control for credit ratings in the credit-spread regressions to further isolate the information impounded in the spreads which is not captured by credit ratings. Specifically, we partition the bond sample into speculative-grade and investment-grade based on whether the bond issue received ratings below BBB according to Standard & Poor's or other equivalent ratings.

We control for various firm characteristics in our analysis, as they may account for additional cross-sectional differences in the cost of debt, beyond auditor specialization. In particular, Mansi, Maxwell and Miller (2004) show that auditor tenure is negatively related to the cost of financing in the bond market and they attribute this outcome to the reduction in information asymmetry as the auditor-client relationship matures. Hence, we include *Auditor Tenure* as a control variable in our analysis. Large firms are considered to be less risky and have better repayment ability (Carey et al., 1993), so one expects that firm size will be inversely related to the credit rating/credit spread (*Firm Size*). Highly leveraged firms (*Leverage*) are likely to be charged with a higher cost of debt (e.g., Peterson and Rajan, 1994). Firms with a heavier financial burden are less likely to meet their debt obligations. We also include a control for the level of tangible assets on the balance sheet (*Tangibility*). The level of the firm's tangible assets is potential collateral and bond investors are expected to demand lower yields on firms with substantial tangible assets. Return on assets (*ROA*)

is also a good indicator of firms' capability of paying back financial liabilities thus one would expect it to be negatively related to the cost of debt.

In addition to firm characteristics, bond characteristics could potentially influence both credit ratings and credit spreads. For instance, *Bond Size*, which is the par value of a bond offered, is included as a control variable to account for the possibility that a larger bond increases the potential losses to bond investors in case of default. Besides, firms with greater risk tend to issue shorter maturity bonds (e.g. Diamond, 2004); hence bond maturity (*Maturity*) is predicted to be negatively associated with the cost of debt.

We further control for any option-like features the bonds might have (we eliminate bonds with convertibility features since their payoff resembles that of an equity security when the convertibility feature is in the money). A call option on a bond issue comes at the expense of the bondholders. It gives firms the right to prepay the debt early. Therefore, we expect a positive relation between the dummy variable *Callable* and the two proxies of the cost of debt. On the opposite, a puttable bond (*Puttable*) entitles bondholders to avoid the downside risk associated with sudden decreases in the bond's value. We expect puttable bonds to receive better ratings and lower yields, at least marginally relative to other bonds. The presence of sinking fund (*Sinking Fund*) adds safety to a bond issue. Its principal is repaid regularly before the maturity date limiting the risk of default on the full face value. Thus, we predict that bondholders will favour sinking fund provisions by accepting a lower yield. Moreover, if a bond is subordinated to other types of debt (*Subordinated*), its default risk is higher and the recovery rate given default is lower when the issuer goes into bankruptcy. Last but not least, we control for the impact of covenants on the cost of debt. Restrictive covenants are important mechanisms that prevent firms from shifting

wealth from debt holders to equity holders. Covenant violations also provide an early warning system about borrower's financial status. Hence, we expect covenants to play an important role in debt pricing. Following Nikolaev (2009), we use the number of covenants to measure the restrictiveness of covenants in bond contracts.

We include year fixed effects in the regressions to account for the possibility that there might be some shifts in debt financing over time due to general debt market conditions. Also, other time specific market conditions can potentially bias the coefficient of the industry auditor specialization if year fixed effects are excluded. In particular, the Arthur Andersen scandal in 2002 may have an influence on the cost of debt when conditioning on audit quality. We also add fixed effects estimation at industry level since it is likely that the cost of debt varies across industries. For example, Jorion, Shi and Zhang (2009) find that utilities receive better ratings than others (probably because they have implicit government backing). Furthermore, we cluster the standard errors at the firm level in all reported analyses to correct for downward biases due to cross-sectional correlations or heteroskedasticity.

2.2. Sample Selection and Descriptive Statistics

We obtain financial and auditor information from the *Compustat Industrial database* and new bond issues from *Mergent Fixed Income Securities Database (FISD)* for firms that issued bonds over the period from 1995 to 2006. *Compustat* helps us to identify a firm's auditor from the item *Auditor/Auditor's Opinion*. Big-4/5 accounting firms audit the majority of the firms.⁹ We focus on Big Auditors only since we are interested in documenting the effect of industry specialization within this

⁹ The first one/two digits of item 149 are the firm auditor code. A list of the codes and the descriptions for the auditor code is available in the data description of *Compustat*. For example, if the auditor code is 4, then the firm's auditor is Ernst & Young. The auditor codes for Deloitte & Touche, KPMG, PricewaterhouseCoopers, and Arthur Anderson are 5, 6, 7 and 1, respectively. If a firm is not audited, its auditor code is 0.

group. Thus, the effects we document go beyond the auditor's brand name which is another proxy used for audit quality. The *Mergent FISD* database contains comprehensive bond-specific information, such as the issue date, bond issue size, bond maturity, bond offering yield to maturity at issue time and bond ratings provided by different ratings agencies. It also includes information about other bond specific characteristics such as whether the bond is callable, puttable and/or subordinated. We remove from the sample all bonds which are convertible, do not have fixed coupon payments, are privately placed or are issued in foreign currencies. These filters allow us to select a more homogenous group of bond securities that facilitates better cross sectional comparisons.

To pin down the industries with auditor specialists, we proceed with the calculation of the total sales of a particular industry according to the two-digit SIC code in a given year. Disaggregating the sales of firms within an industry by their choice of auditors, we get the market shares of the auditors in an industry based on their clients' sales. An industry is identified with an audit specialist if there is an auditor who has the largest market share on the basis of its clients' sales and its market share is at least 10% higher than the auditor who holds the second largest market share in the same industry. Industries with less than 20 companies are deleted from the sample. As shown in Table 1 Panel A, the sample consists of 60,337 firm-year observations after the exclusion of industries that do not satisfy either the standard of auditor specialization or the minimum number of firms.

After matching the Mergent FISD data with Compustat manually (based on the company names, industry and location) and applying the bond filters mentioned above, we end up with the full sample of 10,276 bond-level observations from 1995 to 2006. The details of the sample selection process are presented in Panel A of Table 1. Firms

often issue multiple bonds over the sample period or during a year. In total, there are 1,861 firm-level observations in our sample. We report the distribution of the sample at both firm and bond-levels across the years in Panel B of Table 1. There is a significant increase in the number of new bonds issued after 2002, which is consistent with the rapid development of the U.S. corporate bond market in recent years.

We provide summary statistics for the full sample in Panel A of Table 2. Industry Audit Specialist (*IAS*) is a dummy variable that takes the value “1” if a firm hires the industry audit specialist during a given fiscal year, and “0” otherwise. Firms who hire industry audit specialists cover 27% of our sample. On average, the length of the auditor-client relationship is about 6 years (*Tenure*). The average leverage ratio, computed as long-term debt scaled by total assets, is 43% suggesting that the firms in our sample rely more on debt financing than the average Compustat firm (leverage ratio for the average firm in Compustat is about 25%). *Tangibility* and Return on Assets (*ROA*) are net property, plant and equipment and operating income before depreciation, respectively scaled by total assets. On average, the firms have 24% tangible assets and an ROA of 9%. We use Total assets to proxy for firm size. Firms in our sample are relatively much larger than the average Compustat firm (\$106 mil) consistent with the fact that mostly very large firms are able to access the public debt market. *Credit Rating* represents numeric values assigned as an increasing function of the riskiness of a bond issue. For example, if a bond issue has a rating of AAA by Moody’s or S&P, its credit rating value will be 1; while if a bond issue is rated as BAA, its rating will have the value of 9. The earliest rating for a new bond issue is taken whenever available in Mergent FISD, if not, the second recent rating or the average rating of the issue is used instead. The average firm in the sample gets a rating level of 6.75, well within the investment grade range. *Credit Spread* is the difference

of offering yield and Treasury Bill yields with similar maturity. In our sample, the mean credit spread is about 128 basis points, with a standard deviation of 148 basis points. We measure *Maturity* as the difference in years between the bond issue and its maturity date and *Bond Size* as the initial offering value of a bond issue. Bonds in our sample have about 8 years left to maturity (about the same as the average number of years left to maturity for the average bond in Mergent) and the average bond issue is about \$100 mil. The distribution of the size of the bond issues is heavily right skewed, the median is only \$13 mil. *Covenants* stands for the number of covenants included in a bond issue. On average, there are relatively few covenants in public bonds (with a mean of 1.61). This is consistent with theoretical arguments that the renegotiation cost is much higher for public bonds than private debt (e.g., Garleanu and Zwiebel, 2009). As a consequence, only a few number of covenants are usually placed in public bond contracts (Smith and Warner, 1979).

The Spearman correlations among all the variables are presented in Panel B of Table 2. The significant correlations between *IAS* and *Credit Rating* and *Credit Spread* provide an early indication that hiring industry audit specialists has a positive impact on the cost of new bond issues.

3. Results

3.1. Univariate Evidence

We provide some interesting univariate evidence in Table 3 on the effect of hiring industry auditor specialists. Panel A categorizes the information about industries with identifiable audit specialists during the sample period. In total, 44 industries are recognized as industries with auditor specialization from 1995 to 2006

based on two-digits Standard Industrial Classification (SIC) codes. For example, SIC codes 13, 15 and 17 stand for oil and gas extraction, building construction general contractors and construction special trade contractors divisions, respectively. Four divisions of finance and insurance industries are also present with industry audit specialists. This is consistent with the notion that auditing tasks in building, engineering and financial industries require a high level of industry-specific knowledge due to the complexities of cost capitalization and income recognition in multi-period contracts and the sophistication of financial instruments and derivatives. In the second column, the names of industry audit specialists that dominate the sample period are listed. It is noticeable that PricewaterhouseCoopers is the industry audit specialist for 19 out of 44 industries, which implies that it might earn higher audit fee premiums than the other Big-4 auditors on average. Moreover, industry audit specialists could vary over time. We document the changes in industry audit specialists with the dummy variable ΔIAS . ΔIAS takes the value of 1 if there was a change of the industry audit specialist for a particular industry. For example, for industries 51 and 70, the industry audit specialist switched from Arthur Anderson to Ernst & Young in 2002. This is no surprise given that Arthur Anderson experienced the notorious scandal in the same year. In the Appendix, we present the details of these changes. Panel A of Table 3 also reports the means for credit ratings and credit spreads of firms that hire industry audit specialists and of those that do not. The columns titled as Δ present the signs of the mean difference in credit rating or credit spread between firms without and with industry audit specialists. About 75% of the industries have higher mean credit ratings from firms that *do not* have industry audit specialists, which is consistent with the hypothesis that industry audit specialists help improve firms' credit ratings (note that higher rating numbers mean *lower* quality

ratings). Credit spreads from firms that do not hire industry audit specialists are higher than those received by firms hiring specialists for 77% of the industries we present.

In order to verify statistically whether these differences are significant, we perform non-parametric *t*-tests on the mean difference in ratings and credit spreads between firms that hire industry audit specialists and those that do not at the industry-level. Panel B of Table 3 shows that both rating values and credit spreads of bonds issued by firms that hire industry audit specialists are significantly lower than those that do not at the 1% level, across all industries. These results hold for alternative samples besides the full sample: (1) the sample of firms issuing bonds after Sarbanes Oxley was passed (i.e., post 2002), (2) the sample with non-financial firms and (3) the sample with speculative-grade only bonds. Overall, the industry-specific statistics and tests in Table 3 seemingly support the prediction that the cost of the public debt might be significantly related to whether its issuing firm employs industry audit specialists or not.

3.2. Credit Ratings – Multivariate Evidence

In Table 4, we examine the effect of industry audit specialists on the cost of newly issued bonds using the credit rating as a proxy. All *t*-statistics are clustered at firm level to remove the effects of heteroskedasticity that could bias downwards the standard errors. The first three columns present the results of the regressions using credit ratings as dependent variables and fixed effects estimation, but including different control variables, such as firm characteristics and bond characteristics. We first conduct a univariate test between *Credit Rating* and *Industry Audit Specialist (IAS)* to illustrate the fact that the relation we document is not driven by cross-correlations between the regressors we use. Column 1 shows that there is a strong negative relation between the two variables with a coefficient of -2.94 and a *t*-statistic

equal to -3.25, which indicates that bonds with industry audit specialists in place have smaller rating values and therefore better credit quality as assessed by the rating agencies. Firm-specific variables such as auditor tenure, firm size, leverage, tangibility and return on assets are included in the second regression as shown in Column 2. Not surprisingly, the coefficient on *Industry Audit Specialist* decreases to -1.92 after controlling for other relevant variables for *Credit Rating*, however it still remains significantly negative and the R-squared improves from 3% to about 8%. The signs of the firm-specific variables are also as expected. For example, small and highly-leveraged firms tend to be rated unfavourably in comparison with large and low-leveraged firms. Also firms with high levels of tangibility and return on assets are more likely to achieve better credit ratings. The third column presents the main regression results after including bond characteristics on top of the previous regression. As shown, the coefficient on *Industry Audit Specialist* is -1.91 and it is still significantly negative at 1% level. In terms of economic significance, hiring industry audit specialists could reduce credit ratings by almost two notches; this suggests a significant economic impact. *Covenants* turns out to be very significantly related to credit ratings. The positive sign of its coefficient might reflect the possibility that more restrictive covenants are placed in risky bonds. The above analyses use fixed effect estimation. Given that credit ratings are constructed as discrete values, ranging from 1 to 20 it is possible that the OLS type estimation with fixed effects is inappropriate and biases the coefficient of *IAS* favourably. To account for the discontinuity in the dependent variable, we implement an order logistic regression in the fourth column and the results remain unchanged. Due to the fact that we do not find any significant bias in the coefficient of interest, we present the

remaining results for credit ratings using only OLS regressions which facilitate the interpretation of the economic significance of the *IAS* effect.

Overall, the results in Table 4 strongly support the hypothesis that industry audit specialists offer an enhanced role of insurance for the issuing firm's financial statements and therefore help the firm obtain better credit ratings.

3.3. Credit Spreads – Multivariate Evidence

We also test the hypothesis that the financial statements of firms with industry audit specialists are more likely to be trusted by bondholders and that bondholders accept a lower rate of return on bonds issued by these firms. We conduct various fixed effects estimations of the credit spread on *Industry Audit Specialist* and other factors. We present in Column 1 of Table 5, the result of the univariate test between *Credit Spread* and *Industry Audit Specialist*. A strong correlation between the two variables is reported with a coefficient of -0.57 and a t-statistic of -5.32. The coefficient on *Industry Audit Specialist* drops to -0.37 in the third column after controlling for firm and bond characteristics and year fixed effects. Consistent with our prediction, the empirical analysis finds that hiring industry audit specialists cuts down the credit spread by about 37 basis points. Various control variables load with the expected sign. For example, bonds with a put option are found to be favoured by bondholders and thus receive lower yields.

Bondholders also take into account the information provided by credit agencies. In Column 4, we include *Speculative grade*, a dummy that takes the value of 1 if bonds are rated below BBB and 0 otherwise. As demonstrated in the last subsection, industry audit specialists have a strong positive impact on credit ratings. Therefore, one would expect their influence on credit spreads to be lessened after controlling for credit ratings due to the fact that industry audit specialists affect credit spreads

indirectly through credit ratings. Indeed, we find that the effect of industry auditor specialists on credit spreads is weaker and the coefficient on industry audit specialist drops from -0.37 to -0.31 when *Speculative grade* is added to the regression. Nevertheless, this does not contradict the notion that bondholders value firms' choice of industry audit specialists. On the contrary, it strengthens our prediction in that the choice of industry audit specialists both directly and indirectly reduces bond yields. The *R*-squared of the regression is 49% and indicates that our model has a significant explanatory power.

In summary, the empirical analyses show a persistent negative association between the presence of industry audit specialists and firms' cost of new bond issues, which supports our hypothesis that industry auditor specialists provide an elevated role in auditing assurance and can bring down the costs associated with public debt financing.

4. Sensitivity tests

4.1. The validity test of industry audit specialists

The prior literature on industry audit specialists has shown various links between industry audit specialists and their high-quality audits. First of all, in laboratory settings, there is substantial evidence that industry audits specialists are more knowledgeable, better at risk assessments and more competent at detecting errors in financial statements compared to non-specialists (Hammersley, 2006; Low, 2004; Owoso et al., 2002; Solomon et al., 1999; Taylor, 2000). Second, industry audit specialists are also associated with high earnings quality. Balsam, Krishnan and Yang (2003) show that firms hiring industry audit specialists are less likely to engage in earnings manipulation and their earnings response coefficients are much stronger.

Moreover, from the perspective of disclosure quality, Dunn and Mayhew (2004) provide strong evidence that industry audit specialists are able to help clients improve their disclosures, in particular for firms in unregulated industries. While we draw on these extant literatures to establish the relation between industry audit specialists and the cost of debt implied by the high-quality audits, in the spirit of prudence, we also conduct a validity test of our industry audit specialist measures using the Accounting and Governance Risk (AGR) rating provided by *Audit Integrity*.

The AGR rating is a comprehensive measure of the risk associated with a public firm's accounting and governance practices. It is constructed by applying over 100 accounting and governance metrics to a firm's public information, and it has been shown to be predictive of negative accounting and governance events such as financial restatements and SEC enforcement actions. The AGR rating is a percentile score ranging from 0 to 100, with corresponding ratings from very aggressive to conservative. Hence, high AGR scores imply low accounting and governance risks. We investigate whether industry audit specialists are associated with high audit quality using the AGR score as a quality indicator. Its main advantage is that we have a measure of quality that potentially changes every year and within each industry. If industry audit specialists do enhance the accuracy and quality of the financial statements, firms hiring industry audit specialists should be receive a lower risk of fraud and other misbehaviours, as reflected by high AGR scores.

We report the results of the validity test in Table 6. As shown in Table 6, *Industry Audit Specialists (IAS)* is positively related to the AGR score at the 1% significance level. This implies that industry audit specialists play an important role in reducing accounting and governance risks, and lays the ground for our hypotheses that industry audit specialists help raise public debt at a cheaper rate. It is worth

noting that the validity of industry audit specialists holds for the universal Compustat sample as long as there is an identifiable industry audit specialist (N=30,708). All the control variables are drawn from the prior literature on fraud detection and financial restatements (Carcello and Nagy, 2004; Stanley and DeZoort, 2007; Romanus, Maher and Fleming, 2008). For example, *Financial Condition* is a score for the fundamental financial health of a firm provided by *Audit Integrity*. Consistent with Stanley and DeZoort (2007), a healthy financial condition is associated with low accounting and governance risks. Moreover, mature or profitable firms are also less likely to experience negative accounting and governance events. We expected growth firms, proxied by high market-to-book ratio, to have great pressure to sustain high growth rates and therefore to engage in aggressive accounting practices. However, the coefficient on *Market-to-Book* turns out to be positively related to the AGR score. Interestingly, *Firm Size* is negatively associated with the AGR score, consistent with the notion that large firms have great bargaining power and are more likely to influence other parties such as auditors to engage in aggressive accounting or governance practices. Following Carcello and Nagy (2004), we also control for the stock exchange where the firm is listed. Presumably, the possibility of risky accounting and governance behavior could vary with the different degree of regulation across exchanges.

To sum up, both our validity test and prior studies provide strong evidence that industry audit specialists are positively associated with various aspects of accounting quality. This supports our previous claim that industry audit specialists help improve the credibility of financial statements and enhances the role of industry audit specialists in reducing the cost of debt.

4.2. Alternative measures of industry audit specialists

In the previous sections, we assign an auditor to be the industry audit specialist if it has the largest market share based on its clients' sales and leads the other auditors in the same industry by at least 10%. In this section we relax these assumptions to investigate whether the positive effect of industry audit specialists is robust to different specifications of industry audit specialists.

To start with, we use a 15% cut-off point between the first and the second largest auditors. The first set of results in Table 7 demonstrate that choosing the different cut-off point to determine industry audit specialists does not alter the impact of industry audit specialists on both the credit rating and credit spread results. We also investigate an alternative cut-off point of 5% and designate the two industry audit specialists for a particular industry, and the results (unreported) remain robust.

The Fama-French industry classification is well accepted in finance literature, in particular, in the evaluation of the cost of equity. We try this alternative industry classification when measuring auditors' industry market share to see whether the industry definition introduces measurement error. The second set of results in Table 7 shows that the positive role of industry audit specialists on ratings and spreads remains significant. We also use total assets as the basis to calculate auditors' market share and the results are virtually the same as for sales. Finally, a firm could possibly issue multiple bonds in a given year and this might inflate t-statistics due to cross-section interdependence (we already minimize this effect by clustering the standard errors at the firm level). To tackle this problem, we select only the largest bond issued by a firm in an observation year and find that industry audit specialists could still reduce bond yields by about 16 basis points.

In short, the impact of industry audit specialists on the cost of new bond issues is robust to different specifications of industry audit specialists.

4.3. Additional Sub-Sample Evidence

Panel A of Table 8 reports the impact of industry audit specialists in various sub-samples. After the Sarbanes Oxley Act was passed in 2002, the role of auditors on internal control checks became extremely important. One would expect firms to attach greater importance in selecting a competent auditor with specific industry expertise. Indeed, the first set of results in Panel A shows that the effect of industry audit specialists on the cost of debt persists in the post-SOX. In our sample, financial institutions issue a significant number of bonds and they also represent a challenging industry that requires a high level of financial expertise to prepare audits. Thus, it is not surprising that we find the positive influence of industry audit specialists is robust in the sample that consists of financial institutions only (we find significance also for the non-financial sample). Finally, we investigate the impact of auditor specialists on the sub-sample of bonds that are rated speculative grade.¹⁰ Bonds rated as speculative-grade by rating agencies are perceived to have a higher risk thus specialist auditors are potentially more relevant. It is important for these issuers to send as many positive signals as possible to the market, in order to reduce the bond yields required by bondholders. Employing industry audit specialists to signal high quality financial statements is certainly one possible way to achieve this. In the last set of analyses in Panel A, we show that the positive effect of hiring industry audit specialist is particularly strong in the sample consisting of speculative-grade bonds only.

¹⁰ We run this analysis only for credit spreads since we partition the sample based on the magnitude of credit ratings.

In Panel B of Table 8, we investigate the incremental effect of industry audit specialists on the cost of public debt in the previous sub-samples as compared to their counter-samples. For example, when credit spread is used as the proxy for the cost of debt, the impact of industry audit specialists is significantly stronger in the post-SOX sample as opposed to the pre-SOX sample, consistent with the increase in auditors' responsibilities in post-SOX years. The same holds for the financial industry. It seems the financial industry, in particular, values the role of industry audit specialists. However, as far as speculative-grade and investment-grade samples are concerned, we do not find a significant difference in the role of industry audit specialists.

Overall, the positive impact of industry audit specialists persists in various samples and, in some circumstances, the effect is even stronger.

4.4. Self-selection bias

4.4.1. Auditor changes

Prior literature suggests that the auditor choice is subject to self-selection bias (e.g., Copley et al. 1995, Ireland and Lennox 2002 and Chaney, Jeter and Shivakumar 2004). Firms may choose certain types of auditors based on firm characteristics and unobservable factors. In the setting of industry audit specialists, if firms with a low-expected cost of debt endogenously select industry audit specialists, the coefficient of industry audit specialists would be biased. One way to mitigate this problem is to look at the changes in ratings and spreads when the auditors are changing. Potentially, the effect of the unobserved factors that drive the auditor choice would be eliminated if they are not also changing in the period after the auditor is changed. In addition, a changes analysis provides more evidence with respect to the causality assumption which we implicitly make. If the cost of debt changes after the auditor is changed, it is more likely that the auditor choice is affecting the cost of debt not the other way

around.¹¹

We provide some univariate evidence of the impact of changes in industry audit specialists on credit ratings and credit spreads in panel A of Table 9. Interestingly, when a firm switches from a non-industry audit specialist to an industry audit specialist, the bond market does not seem to reward it with better ratings or lower yields. However, if a firm dismisses an industry audit specialist and replaces it with a less competent auditor, both rating agencies and bondholders react negatively. For example, 78% of firms get downgraded and 61% of firms are charged with higher credit spreads subsequent to their firing decisions of an industry audit specialist.

In panel B of Table 9, we present the results of change regressions, controlling for changes in firm and bond characteristics. Δ IAS can take the values of 1, -1 and 0, representing the change from non-industry audit specialists to industry audit specialists, from industry audit specialists to non-industry audit specialists, and no change in industry audit specialists, respectively. The sample decreases significantly since we now require auditor changes and the existence of bond issues both before and after these changes for the *same* firm. We remove bonds in the year of change since it is not clear whether they were issued before or after the auditor change. We expect a negative correlation between Δ IAS and the change in the cost of debt. Consistent with this expectation, we find that the change of industry audit specialists is negatively associated with the changes in credit spreads. This strengthens our main results of the positive impact of industry audit specialist on the cost of debt. We do not find results for credit ratings maybe because rating agencies are slower to change their ratings after such events. Actually, a stated purpose of the rating agencies is to

¹¹ That being said, we acknowledge that there is a possibility that expectations about future debt financing choices and the cost of debt could contribute to the decision to change the auditor.

maintain rating stability and change the ratings only when significant credit event occur.¹²

4.4.2. Endogenous Switching Regression

Using a Heckman self-selection model¹³ imposes an implicit assumption that the effects of hiring industry audit specialists are constant across all firms. However, one could argue that there might be inherent differences in the relations between firm, bond characteristics and the cost of debt across firms. Endogenous switching regression allows this flexibility and does the second stage separately for firms that hire industry audit specialist and those do not. Specifically, the first stage of the switching regression is the same as Heckman self-selection model and is a probit model based on firms' self-selection decisions of hiring industry audit specialists or not. In the second stage, we have two equations:

$$Y_1 = \beta_1 x + \varepsilon_1 \quad \text{if IAS}=1 \quad (1)$$

$$Y_0 = \beta_0 x + \varepsilon_0 \quad \text{if IAS}=0 \quad (2)$$

In equation (1), we evaluate the effects of various firm, bond characteristics on the cost of debt in the sub-sample consisting of firms hiring industry audit specialists only, while in equation (2), we estimate the cost of debt in the sub-sample of non-industry audit specialists firms. We allow the coefficients on control variables to vary across firms that hire industry audit specialists and those do not. Obviously, the dummy variable *industry audit specialist* is no longer included in the second stage given that we have already partitioned the full sample into a sub-sample with firms hiring industry audit specialists and another with firms that do not.

¹² Unfortunately, we do not have access to other historical rating agency disclosures which are more timely such as watch list additions or outlooks.

¹³ As a sensitivity test, we employ the Heckman two-stage model to investigate the self-selection bias of auditor choice as well. The results (unreported) suggest that the positive impact of industry audit specialists remains robust after controlling for the self-selection bias.

The key advantage of switching regression is that now we are able to get some estimates of the unobserved counterfactual outcomes. For example, we can obtain the expected cost of debt for firms that hired industry audit specialists, had they not hired industry audit specialists. More specifically, we retrieve an estimate of the counterfactual expected cost of debt of firms with industry audit specialists by using the estimated coefficients in the regression (2) of non-industry audit specialist firms and including the inverse mills ratio when a firm does not hire an industry audit specialist from the first stage. In an analogue way, we can also get an estimate of the counterfactual cost of debt for firms could have hired an industry audit specialist, but they did not.

We present the results of endogenous switching regressions in Table 10. The inverse mills-ratio comes up significantly for non-IAS firms in the credit-rating regression and for both IAS firms and non-IAS firms in the credit-spread regressions. Therefore, there are selection biases. Nevertheless, after taking these selection biases into account, we still obtain significant differences between the actual cost of debt and the counterfactual cost of debt and the signs are consistent with our hypotheses. Taking IAS firms in the credit-rating regression as an example, the difference between the actual ratings of firms that do hire industry audit specialists and the counterfactual ratings is negative and very significant. This result implies that if these IAS firms had not hired industry audit specialists, their ratings could have been more than two notches worse. For non-IAS firms, if they had employed industry audit specialists, their ratings could have improved by about 0.27 notches. The same interpretation holds for the credit-spread regressions.

Overall, switching regressions give us a clear picture of what would have happened if IAS firms had not chosen industry audit specialists and if non-IAS firms

had chosen industry audit specialists. They provide additional evidence that strengthens our claims that hiring industry audit specialists has a positive impact on the cost of debt for firms issuing new public debt.

5. Conclusions

The role of big auditors with respect to cost of capital has been explored primarily in the stock markets and relatively few papers touch the bond market. This paper fills this gap and further investigates the specialization among big auditors and its influence on the cost of public debt. We find that firms hiring industry audit specialists have better credit ratings than the firms that do not, after controlling for firm and bond specific characteristics. Also, bondholders demand a lower rate of return on bonds issued by firms with industry audit specialists than those that do not employ these specialists. The results are robust to controls for self-selection biases, different regression methodologies, alternative ways to identify industry auditor specialists and different proxies for the cost of debt.

This paper improves our understanding on industry audit specialists, as a subset of auditors. The results provide evidence consistent with the fact that industry audit specialists can provide enhanced audit assurance for credit rating agencies and bondholders. However, one might ask why not all the firms hire audit specialists if industry audit specialists can help them obtain cheaper debt financing? A potential reason is that there is a trade-off between the benefit of having auditor specialists and the cost of high audit fees that industry audit specialists usually demand. The choice of industry audit specialists depends on whether the marginal benefit of hiring an industry audit specialists exceeds the marginal auditing cost incurred. For example, when a firm just re-emerges from Chapter 11 and it desperately needs to rebuild

investors' confidence, there can be benefits from choosing an industry audit specialist despite the high audit fees. Future research could study the effect of hiring industry audit specialists on the cost of capital for firms that re-emerge from distress.

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Appendix: The Changes of Industry Audit Specialists Over Time

SIC	Year of Changes	Description of Changes
15	1999	from Arthur Anderson to Ernst & Young
23	2006	from Ernst & Young to Deloitte & Touche
24	2005	from Arthur Anderson to KPMG
26	2002	from Arthur Anderson to PricewaterhouseCoopers
37	2001	from Deloitte to PricewaterhouseCoopers
42	2006	from Ernst & Young to Deloitte & Touche
48	2001	from PricewaterhouseCoopers to Ernst & Young
49	2001	from Arthur Anderson to Deloitte & Touche
51	2002	from Arthur Anderson to Ernst & Young
55	2002	from Arthur Anderson to Deloitte & Touche
70	2002	from Arthur Anderson to Ernst & Young
79	2002	from Arthur Anderson to Deloitte & Touche

Table 1 Panel A: Sample Selection

This panel describes the sample selection process. (1) Compustat Industry Audit Specialist (IAS) Sample includes completed firm-year observations based on industry audit specialist identification by clients' sales from 1995 to 2006. (2) The second sample conditions Compustat IAS Sample on the availability of all firm-level control variables. (3) Sample (2) is then merged with Mergent Fixed Income Database (FISD) to obtain information on bond characteristics. The significant decrease in sample size is due to the unavailability of filing dates for many observations in Sample (2). (4) The final sample retains observations audited by Big Auditors only.

Description	Obs.
Compustat IAS Sample	60,337
Compustat IAS Sample with firm characteristics	59,547
The sample after merging with MFISD and with bond characteristics	10,404
Final sample	10,276

Table 1 Panel B: Bond Issue-Level and Firm-Level Observations

This panel looks at the distribution of observations across years over the sample period. There are in total 1,861 firm-level and 10,276 bond issue-level observations.

Year	Firm-Level Obs.	Bond Issue-Level Obs.
1995	58	373
1996	96	517
1997	122	715
1998	212	642
1999	136	695
2000	64	446
2001	190	773
2002	62	155
2003	341	2258
2004	206	1563
2005	200	1342
2006	170	797
Total	1,861	10,276

Table 2 Panel A: Summary Statistics

This panel reports summary statistics for the full sample of 10,276 observations from 1995 through 2006. *Industry audit specialist (IAS)* is a dummy variable that takes the value 1 if a firm has the industry audit specialist in place and 0 otherwise. *Tenure* equals to the length of auditor-client relationship (in years). *Leverage* is calculated as long-term debt divided by total asset. *Tangibility* is net property, plant and equipment scaled by total assets. *ROA* is measured as operating income divided by total assets. *Firm size* is the logarithm of total assets. *Credit Rating* is the rating value offered by S&P's or Moody's, ranging from 1 to 20. *Credit Spread* is the difference between the yield of the benchmark treasury issue and the issue's offering yield. *Maturity* is measured as the difference between the bond issue and its maturity dates. *Callable* is a dummy variable that equals to 1 if a bond issue has a call option and 0 otherwise. *Putable* is a dummy variable that takes the value 1 if a bond issue has a put option and 0 otherwise. *Sinking fund* is a dummy variable that equals to 1 if a bond issue has sinking fund and 0 otherwise. *Subordinated* is a dummy variable that assigns 1 to a subordinated bond issue and 0 otherwise. *Bond Size* is the initial offering value of a bond issue. *Covenants* is the number of covenants included in a bond issue. *, **, *** are 10%, 5% and 1% significant levels.

	No. of Obs.	Mean	SD	Distribution		
				25 th	50 th	75 th
<i>Firm Characteristics</i>						
IAS	10,276	0.27	0.44	0.00	0.00	1.00
Tenure	10,276	5.88	3.31	3.00	5.00	9.00
Leverage	10,276	0.43	0.17	0.32	0.43	0.53
Tangibility (%)	10,276	23.55	24.98	7.99	13.88	31.88
ROA (%)	10,276	9.10	4.87	6.53	8.29	10.18
Firm Size	10,276	106,791	145,035	11,135	27,806	168,410
<i>Bond Characteristics</i>						
Credit Rating	10,276	6.75	4.84	6.00	6.00	7.00
Credit Spread	10,276	1.28	1.48	0.44	0.82	1.66
Maturity	10,276	8.86	7.96	4.00	7.00	10.00
Callable	10,276	0.43	0.50	0.00	0.00	1.00
Putable	10,276	0.01	0.07	0.00	0.00	0.00
Sinking Fund	10,276	0.00	0.06	0.00	0.00	0.00
Subordinated	10,276	0.01	0.10	0.00	0.00	0.00
Bond Size	10,276	114,190	223,387	3,632	13,320	125,000
Covenants	10,276	1.61	3.55	0.00	0.00	0.00

Table 2 Panel B : Spearman Correlation Matrix

This panel looks at the spearman correlations between various variables used in our empirical analyses. *Credit Rating* is the rating value offered by S&P's or Moody's, ranging from 1 to 20. *Credit Spread* is the difference between the yield of the benchmark treasury issue and the issue's offering yield. *Industry audit specialist (IAS)* is a dummy variable that takes the value 1 if a firm has the industry audit specialist in place and 0 otherwise. *Tenure* equals to the length of auditor-client relationship (in years). *Leverage* is calculated as long-term debt divided by total asset. *Tangibility* is net property, plant and equipment scaled by total assets. *ROA* is measured as operating income divided by total assets. *Firm size* is the logarithm of total assets. *Maturity* is measured as the difference between the bond issue and its maturity dates. *Callable* is a dummy variable that equals to 1 if a bond issue has a call option and 0 otherwise. *Putable* is a dummy variable that takes the value 1 if a bond issue has a put option and 0 otherwise. *Sinking fund* is a dummy variable that equals to 1 if a bond issue has sinking fund and 0 otherwise. *Subordinated* is a dummy variable that assigns 1 to a subordinated bond issue and 0 otherwise. *Bond Size* is the initial offering value of a bond issue. *Covenants* is the number of covenants included in a bond issue. *, **, *** are 10%, 5% and 1% significant levels.

	Credit Rating	Credit Spread	IAS	Tenure	Leverage	Tangibility	ROA	Firm Size	Maturity	Callable	Putable	Sinking Fund	Subordinated	Bond size
Credit Spread	0.57***													
IAS	-0.22***	-0.04***												
Tenure	-0.09***	0.11***	0.03***											
Leverage	0.10***	0.16***	-0.33***	0.04***										
Tangibility	0.21***	0.20***	0.03***	-0.05***	-0.25***									
ROA	0.18***	0.08***	-0.07***	-0.19***	-0.29***	0.62***								
Firm Size	-0.41***	-0.13***	0.06***	0.43***	0.15***	-0.35***	-0.43***							
Maturity	-0.04***	0.24***	0.23***	0.03***	-0.14***	0.14***	0.07***	-0.11***						
Callable	0.17***	0.40***	0.14***	0.18***	-0.03***	0.16***	0.07***	-0.13***	0.62***					
Putable	0.00	-0.04***	-0.01	-0.06***	-0.01*	0.05***	0.07***	-0.05***	0.09***	-0.04***				
Sinking Fund	0.00	0.01	0.04***	-0.02***	-0.03***	0.06***	0.00	-0.04***	0.05***	0.06***	-0.00			
Subordinated	-0.06***	-0.05***	0.07***	-0.08***	-0.10***	0.14***	0.02**	-0.04***	0.04***	-0.00	-0.00	0.41***		
Bond Size	0.32***	0.38***	0.15***	-0.06***	-0.29***	0.31***	0.31***	-0.30***	0.17***	0.27***	0.02***	0.06***	-0.00	
Covenants	0.46***	0.41***	0.14***	-0.10***	-0.19***	0.35***	0.34***	-0.52***	0.25***	0.39***	0.01***	0.03***	-0.00	0.66*

Table 3 Panel A: Univariate Evidence on the Impact of IAS

This panel provides univariate evidence on the impact of industry audit specialists. *IAS Name* stands for the name of the industry audit specialist. Δ *IAS* is an indicator variable that equals to 1 if the industry audit specialist has changed for a particular industry over time (see Appendix for the details of the changes in IAS). Δ stands for the differences in ratings or spreads between firms hiring industry audit specialists and those do not.

SIC	IAS Name	Δ IAS	Credit Rating		Credit Spread			
			IAS=1	IAS=0	Δ	IAS=1	IAS=0	Δ
13	PricewaterhouseCoopers	0	10.96	13.88	2.92	2.84	2.45	-0.39
15	Ernst & Young	1	11.03	11.14	0.11	2.64	2.70	0.06
17	Arthur Anderson	0	15.00	14.58	-0.42	4.90	3.58	-1.33
20	PricewaterhouseCoopers	0	6.18	7.97	1.79	0.99	1.56	0.57
22	Ernst & Young	0	16.00	14.00	-2.00	5.30	4.18	-1.12
23	Ernst & Young	1	11.40	11.86	0.46	3.23	3.95	0.72
24	Arthur Anderson	1	9.60	8.50	-1.10	1.94	2.34	0.41
25	PricewaterhouseCoopers	0	8.92	14.36	5.44	1.85	4.48	2.63
26	PricewaterhouseCoopers	1	8.74	9.03	0.29	1.48	2.02	0.54
28	PricewaterhouseCoopers	0	8.48	7.97	-0.51	2.28	1.82	-0.46
29	PricewaterhouseCoopers	0	8.50	9.00	0.50	1.60	2.42	0.82
30	PricewaterhouseCoopers	0	8.12	9.78	1.66	1.44	1.84	0.40
31	Ernst & Young	0	9.00	14.00	5.00	0.54	5.25	4.71
33	PricewaterhouseCoopers	0	7.61	14.77	7.16	1.49	5.34	3.85
34	PricewaterhouseCoopers	0	13.78	11.76	-2.02	3.54	1.30	-2.24
35	PricewaterhouseCoopers	0	11.33	12.73	1.39	2.93	1.17	-1.75
36	KPMG	0	7.65	12.47	4.82	1.88	3.65	1.76
37	PricewaterhouseCoopers	1	7.36	9.49	2.14	1.34	2.13	0.79
38	PricewaterhouseCoopers	0	8.24	15.53	7.29	1.05	2.74	1.69
39	PricewaterhouseCoopers	0	7.53	13.50	5.97	0.66	3.79	3.13
40	PricewaterhouseCoopers	0	4.37	5.47	1.10	0.49	0.53	0.04
42	Ernst & Young	1	5.20	3.00	-2.20	1.12	0.80	-0.33
44	PricewaterhouseCoopers	0	10.38	13.67	3.29	1.97	4.54	2.57
45	Ernst & Young	0	9.11	17.33	8.22	2.81	5.35	2.54
48	Ernst & Young	1	7.39	12.58	5.18	1.53	3.11	1.58
49	Deloitte & Touche	1	7.23	9.78	2.55	1.56	2.07	0.51
50	Deloitte & Touche	0	10.67	8.91	-1.76	1.76	1.80	0.04
51	Ernst & Young	1	8.13	13.86	5.72	1.57	4.60	3.03
53	Ernst & Young	0	4.25	7.87	3.62	0.79	1.42	0.63
54	Deloitte & Touche	0	6.29	11.23	4.94	0.96	1.62	0.66
55	Arthur Anderson	1	15.00	10.00	-5.00	5.61	3.01	-2.60
56	Deloitte & Touche	0	8.00	11.00	3.00	3.82	4.04	0.22
61	KPMG	0	3.00	6.19	3.19	0.69	1.01	0.33
62	Deloitte & Touche	0	5.92	8.00	2.08	0.46	0.63	0.17
63	PricewaterhouseCoopers	0	3.60	6.92	3.32	0.78	1.59	0.81
67	Ernst & Young	0	10.50	10.00	-0.50	2.86	3.43	0.58
70	Arthur Anderson	1	9.17	12.89	3.72	2.08	2.54	0.47
72	PricewaterhouseCoopers	0	10.00	7.00	-3.00	2.92	1.95	-0.96
73	PricewaterhouseCoopers	0	5.26	9.26	4.00	1.14	1.54	0.40
75	KPMG	0	8.00	11.00	3.00	0.53	0.86	0.33
78	Ernst & Young	0	15.67	17.50	1.83	4.36	5.45	1.09
79	Arthur Anderson	1	13.59	15.92	2.34	3.40	3.85	0.45
80	Ernst & Young	0	10.68	13.85	3.17	2.37	3.36	1.00
87	PricewaterhouseCoopers	0	15.00	7.00	-8.00	6.00	2.77	-3.22
	% Positive Sign				75%			77%

Table 3 Panel B: Non-Parametric Tests for Different Samples

This panel reports the non-parametric t-tests for different samples. *Full sample* consists of observations in 44 industries. *Post-SOX sample* contains observations after the passage of Sarbanes-Oxley Act 2002 (including 2002). *Non-Financial sample* covers observations in non-financial industries. *Speculative-grade sample* includes observations that are rated below BBB by S&P ratings or equivalent Moody's ratings. *Diff. Credit Rating* and *Diff. Credit Spread* represent the differences in ratings and spreads between firms hiring industry audit specialist and those do not. The reported P-value is from one-tail t-test.

	Sample	Obs.	Mean	Std.Error	H₀: Mean>0 P-value
Diff. Credit Rating	Full Sample	44	1.92***	0.49	0.0002
	Post-SOX Sample	30	2.05***	0.61	0.0012
	Non-Financial Sample	39	1.84***	0.55	0.0010
Diff. Credit Spread	Full Sample	44	0.54**	0.24	0.0169
	Post-SOX Sample	30	0.95***	0.26	0.0006
	Non-Financial Sample	39	0.54**	0.27	0.0288
	Speculative-grade Sample	36	0.39**	0.22	0.0473

Table 4: Main Results for Credit Rating

This table presents the main results for credit-rating regressions. Columns (1) to (3) present the results using OLS regressions, while Column (4) reports the results using ordered logistic regression. *Credit Rating* is the rating value offered by S&P's or Moody's, ranging from 1 to 20. *Industry audit specialist (IAS)* is a dummy variable that takes the value 1 if a firm employs the industry audit specialist and 0 otherwise. *Tenure* equals to the length of auditor-client relationship (in years). *Leverage* is calculated as long-term debt divided by total asset. *Firm size* is the logarithm of total assets. *Tangibility* is net property, plant and equipment scaled by total assets. *ROA* is measured as operating income divided by total assets. *Puttable* is a dummy variable that takes the value 1 if a bond issue has a put option and 0 otherwise. *Callable* is a dummy variable that is equal to 1 if a bond issue has a call option and 0 otherwise. *Sinking fund* is a dummy variable that equals to 1 if a bond issue has sinking fund and 0 otherwise. *Subordinated* is a dummy variable that assigns 1 to a subordinated bond issue and 0 otherwise. *Maturity* is measured as the difference between the bond issue and its maturity date. *Bond Size* is the initial offering value of a bond issue. *Covenants* is the number of covenants included in a bond issue. *, **, *** are 10%, 5% and 1% significant levels.

	Dependent Variable: Credit Rating							
	(1)		(2)		(3)		(4)	
<i>Firm Characteristics</i>	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	z-statistic
IAS	-2.94***	-3.25	-1.92**	-2.55	-1.91***	-2.59	-1.97***	-2.71
Tenure			0.04	0.36	0.01	0.12	0.04	0.47
Leverage			3.65**	2.22	2.21	1.52	3.06*	1.80
Firm Size			-0.75***	-2.73	-0.44*	-1.86	-0.16	-0.81
Tangibility			-0.04***	-2.93	-0.03**	-2.05	-0.02**	-2.02
ROA			-0.09**	-2.09	-0.07	-1.60	-0.04	-1.30
<i>Bond Characteristics</i>								
Puttable					-0.94	-0.95	-0.55	-0.57
Callable					0.52	1.51	0.40	1.30
Sinking Fund					0.14	0.17	0.51	0.65
Subordinated					-1.91*	-1.83	-1.97*	-1.73
Maturity					-0.06***	-3.79	-0.05***	-2.82
Bond Size					-0.10	-1.46	0.01	0.29
Covenants					0.44***	6.80	0.31***	7.79
Year Fixed Effects	Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes	
N	10,276		10,276		10,276		10,276	
Adjusted-R ²	0.03		0.08		0.11		0.18	

Table 5: Main Results for Credit Spread

This table presents the main results for credit-spread regressions. *Credit Spread* is the difference between the yield of the benchmark treasury issue and the issue's offering yield. *Credit Rating* is the rating value offered by S&P's or Moody's, ranging from 1 to 20. *Industry audit specialist (IAS)* is a dummy variable that takes the value 1 if a firm employs the industry audit specialist and 0 otherwise. *Tenure* equals to the length of auditor-client relationship (in years). *Leverage* is calculated as long-term debt divided by total asset. *Firm size* is the logarithm of total assets. *Tangibility* is net property, plant and equipment scaled by total assets. *ROA* is measured as operating income divided by total assets. *Puttable* is a dummy variable that takes the value 1 if a bond issue has a put option and 0 otherwise. *Callable* is a dummy variable that equals to 1 if a bond issue has a call option and 0 otherwise. *Sinking fund* is a dummy variable that equals to 1 if a bond issue has sinking fund and 0 otherwise. *Subordinated* is a dummy variable that assigns 1 to a subordinated bond issue and 0 otherwise. *Maturity* is measured as the difference between the bond issue and its maturity date. *Bond Size* is the initial offering value of a bond issue. *Covenants* is the number of covenants included in a bond issue. *Speculative-grade* equals to 1 if a bond is rated below BBB by S&P's or equivalent Moody's Ratings. *, **, *** are 10%, 5% and 1% significant levels.

	Dependent Variable: Credit Spread							
	(1)		(2)		(3)		(4)	
<i>Firm Characteristics</i>	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
IAS	-0.57***	-5.32	-0.26	-1.65	-0.37***	-2.85	-0.31***	-2.63
Tenure			0.05	1.39	0.04	1.30	0.02	1.09
Leverage			2.07***	3.88	1.34***	3.17	1.06***	2.98
Firm Size			-0.14	-1.53	-0.01	-0.04	0.01	0.02
Tangibility			-0.01	-1.50	0.01	0.65	0.01**	2.03
ROA			-0.02*	-1.77	-0.01	-1.42	-0.01	-0.45
<i>Bond Characteristics</i>								
Puttable					-0.51**	-2.45	-0.58***	-2.79
Callable					0.35***	3.66	0.26***	3.06
Sinking Fund					-0.26	-0.65	-0.33	-1.00
Subordinated					0.26	1.01	0.26	1.23
Maturity					-0.01	-0.48	0.01	1.38
Bond Size					0.01	0.15	0.03	1.62
Covenants					0.21***	17.57	0.14***	11.60
Speculative-grade							1.33***	11.28
Year Fixed Effects	Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes	
N	10,276		10,276		10,276		10,276	
Adjusted-R ²	0.07		0.10		0.44		0.49	

Table 6: The Validity Test of Industry Audit Specialists

This table presents the result of the validity test of industry audit specialists. The *Accounting and Governance Risk (AGR) score* ranges from 0 to 100, with corresponding accounting and governance ratings from very aggressive to conservative. *Industry audit specialist (IAS)* is a dummy variable that takes the value 1 if a firm employs the industry audit specialist and 0 otherwise. *Financial Condition* is a score for the fundamental financial health of a firm. Low financial condition score implies the firm might be in finance distress. *Firm size* is the logarithm of total assets. *Firm age* is the number of years a firm has been public listed. *Profitability* is measured as operating income divided by total assets. *Market-to-book* is the ratio of a firm's market value to its book value. NYSE, NASD and AMEX indicates whether a firm is listed on the New York Stock Exchange, National Association of Securities Dealers Automated Quotation System or American Stock Exchange. **, *** are 10%, 5% and 1% significant levels.

Variable	Dependent variable: AGR Score					
	(1)		(2)		(3)	
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
IAS	0.58***	2.78	0.59***	2.75	0.50***	2.37
Financial Condition			0.07***	26.06	0.06***	21.53
Firm Size			-0.67***	-16.70	-0.92***	-18.17
Firm Age			0.14***	21.47	0.15***	22.12
Profitability			0.01***	6.94	0.01***	6.59
Market-to-Book			0.01***	4.79	0.01***	4.46
NYSE					3.11***	9.22
NASD					3.75***	15.46
AMEX					2.60***	6.62
N	30,708		30,708		30,708	
Ajusted-R ²	0.01		0.03		0.04	

Table 7: Sensitivity tests

This table reports the results for various sensitivity tests. *15% Cut-off* identifies industry audit specialists by imposing 15% difference in the market shares of clients' sales between the largest auditor and the second largest auditor. *Fama French* designates industry audit specialists based on the Fama French Industry classification. *Total Assets* assigns industry audit specialists on auditors' market shares in terms of their client's total assets. *Single Bond* restricts the full sample to one bond per firm per observation year. **, *** are 10%, 5% and 1% significant levels.

	15% Cut-off				Fama French				Total Assets				Single Bond			
	Credit Rating		Credit Spread		Credit Rating		Credit Spread		Credit Rating		Credit Spread		Credit Rating		Credit Spread	
<i>Firm Characteristics</i>	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
IAS	-2.06**	-2.35	-0.38***	-2.90	-1.83**	-2.27	-0.31**	-2.23	-1.83**	-2.28	-0.33***	-2.67	-0.24	-0.63	-0.16**	-2.26
Tenure	0.01	0.11	0.02	0.96	0.03	0.39	0.03	1.10	-0.01	-0.05	0.02	0.96	0.05	1.19	-0.01	-0.14
Leverage	2.15	1.26	0.94**	2.48	3.28**	2.37	1.08***	3.19	2.20	1.45	1.02***	2.78	2.02	1.42	1.63***	6.27
Firm Size	-0.37	-1.50	0.03	0.71	-0.31	-1.39	0.01	0.18	-0.44*	-1.74	0.02	0.40	-1.20***	-5.57	-0.15***	-3.50
Tangibility	-2.32	-1.10	0.45	1.63	-0.03***	-3.21	0.01**	2.02	-0.01	-0.86	0.01**	1.99	-0.02***	-2.89	-0.01	-0.44
ROA	-0.05	-0.85	-0.01	-0.04	-0.02	-0.72	-0.01	-0.39	-0.05	-1.13	-0.01	-0.68	-0.14***	-2.80	-0.03***	-4.91
<i>Bond Characteristics</i>																
Putable	-0.90	-0.73	-0.28*	-1.92	-1.38	-1.33	-0.85**	-2.56	-1.01	-0.81	-0.36**	-2.27	0.21	0.26	-0.90	-1.52
Callable	0.57	1.45	0.31***	3.31	0.55	1.63	0.28***	3.04	0.46	1.23	0.27***	2.86	1.55**	2.52	0.05	0.62
Sinking Fund	-0.39	-0.42	-0.56**	-2.15	-1.82*	-1.74	-0.41	-1.73	-0.85	-1.15	-0.54**	-2.21	-0.72	-0.65	-0.55	-0.98
Subordinated	-1.83*	-1.71	0.35	1.52	-1.85**	-2.05	-0.05	-0.26	-1.75*	-1.77	0.23	1.10	-0.69	-0.69	0.51	1.38
Maturity	-0.06***	-3.20	0.01	0.53	-0.06***	-4.18	0.01	1.06	-0.06***	-3.12	0.01	1.01	-0.06***	-3.64	0.01***	5.73
Bond Size	-0.12	-1.61	0.04**	2.03	-0.05	-0.79	0.04**	2.32	-0.05	-1.04	0.02	1.25	-0.20	-0.75	-0.16***	-3.01
Covenants	0.44***	5.56	0.14***	11.21	0.46***	6.99	0.13***	10.64	0.45***	6.71	0.14***	11.44	0.33***	5.08	0.13***	9.95
Speculative-grade			1.33***	11.03			1.29***	11.66			1.31***	10.60			1.26***	11.17
Year Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
N	9,038		9,038		9,800		9,800		9,627		9,627		1,856		1,856	
Adjusted-R ²	0.24		0.46		0.23		0.50		0.31		0.48		0.29		0.62	

Table 8: Sub-sample Results

Panel A of this table reports the results for Post-Sox, Financial and Speculative-grade samples. Panel B presents the differences in the coefficients on Industry Audit Specialists between Post-SOX and Pre-SOX samples, between Financial and Non-financial samples, between Speculative-grade and investment-grade samples. *, **, *** are 10%, 5% and 1% significant levels.

	Post-SOX Sample				Financial Sample				Speculative-grade Sample	
	Credit Rating		Credit Spread		Credit Rating		Credit Spread		Credit Spread	
<i>Firm Characteristics</i>	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
IAS	-2.33***	-2.79	-0.46***	-3.11	-2.35*	-1.85	-0.50***	-3.09	-0.34***	-2.93
Tenure	-0.05	-0.57	0.01	0.78	-0.01	-0.11	0.01	0.67	0.01	0.19
Leverage	3.22*	1.83	1.27***	2.67	1.01	0.45	0.50	1.47	2.16***	7.19
Firm Size	0.01	0.01	0.10	1.42	-0.02	-0.07	0.15***	2.81	-0.25***	-4.84
Tangibility	-0.01	-1.12	0.01***	2.80	-0.14**	-2.47	-0.01	-1.42	0.01	0.94
ROA	0.01	0.43	0.01	0.72	0.48**	2.30	0.11***	3.93	-0.04***	-4.88
<i>Bond Characteristics</i>										
Putable	3.14***	4.25	-1.02**	-1.89	-1.85**	-2.19	-0.36	-0.51	-0.58**	-2.05
Callable	0.10	0.26	0.21	1.56	0.66	1.54	0.35***	2.83	0.47***	3.08
Sinking Fund	-2.68*	-1.82	-1.06*	-1.85	-3.93***	-6.80	-0.65	-1.28	0.64	0.85
Subordinated	3.06**	2.42	0.51	1.05	3.82***	3.85	0.89***	3.59	0.40	0.60
Maturity	-0.06***	-3.06	0.01	0.88	-0.08***	-2.77	-0.01	-0.43	-0.01	-1.30
Bond Size	0.03	0.44	0.05***	2.95	-0.09	-1.06	0.06***	2.87	-0.05	-1.64
Covenants	0.45***	6.98	0.16***	8.59	0.75*	1.84	0.07**	2.2	0.15***	10.48
Speculative-grade			1.50***	10.73			1.20***	9.62		
N		6,115		6,115		6,864		6,864		1,523
Adjusted-R ²		0.45		0.42		0.30		0.26		0.51
Panel B										
<i>Diff. in Coef. On IASs</i>	Credit Rating		Credit Spread		Credit Rating		Credit Spread		Credit Spread	
Post-SOX v.s. Pre-Sox	-1.18		-0.44***		-0.89		-0.48***			
Financial v.s. Non financial					-0.89		-0.48***			
Speculative v.s. Investment grades									0.07	

Table 9 Panel A: Univariate Evidence of IAS Changes

This panel describes the changes in credit rating or credit spread when firms switch from Non-Industry Audit Specialists to Industry Audit Specialist or vice versa. *Downgrade*, *upgrade* and *unchanged* mean credit ratings get worse, better or unchanged, respectively. *Increased*, *decreased* and *unchanged* mean credit spreads become bigger, smaller or unchanged, respectively.

Auditor Changes		From Non-IAS to IAS	From IAS to Non-IAS
Credit Rating Changes	Downgrade	24 45%	18 78%
	Upgrade	17 32%	4 17%
	Unchanged	12 23%	1 4%
Credit Spread Changes	Increased	27 51%	14 61%
	Decreased	26 49%	9 39%
	Unchanged	0 0%	0 0%

Table 9 Panel B: Change Regressions

This panel reports the change regressions in credit rating and credit spread. Δ IAS is the difference in the dummy variable IAS between year t and t-1.

	Δ Credit Rating			Δ Credit Spread		
	Coef.	z-statistic	Coef.	t-statistic	Coef.	t-statistic
<i>Firm Characteristics</i>						
Δ IAS	0.02	0.15	-0.26*	-1.82	-0.23*	-1.68
Δ Leverage	3.32***	6.57	1.86***	4.15	1.53***	3.35
Δ Firm Size	-0.37***	-4.57	-0.10	-1.43	-0.01	-0.20
Δ Tangibility	0.01	0.05	0.01	0.06	-0.01	-0.08
Δ ROA	-0.05***	-4.40	-0.05***	-5.14	-0.04***	-4.25
<i>Bond Characteristics</i>						
Δ Putable	2.15***	5.16	0.704	1.10	0.52	0.82
Δ Callable	0.06	0.43	0.14	1.05	0.13	1.06
Δ Sinking Fund	-1.06	-1.03	-0.06	-0.07	0.13	0.17
Δ Subordinated	-0.23	-0.43	-0.13	-0.21	-0.15	-0.27
Δ Maturity	-0.02***	-4.61	0.01**	2.50	0.01***	3.58
Δ Bond Size	0.08	1.64	0.01	0.28	0.01	0.19
Δ Covenants	0.24***	10.37	0.15***	7.69	0.11***	4.99
Δ Credit Rating					0.10***	2.74
Year Fixed Effects	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes	
N	891		891		891	
Adjusted-R2	0.14		0.31		0.38	

Table 10: Endogenous Switching Regression Model

This table presents the results for the second-stage of switching regressions. IAS firms refer to firms hiring industry audit specialists, while non-IAS firms are firms that do not hire industry audit specialists. Credit Rating is the rating value offered by S&P's or Moody's, ranging from 1 to 20. Credit Spread is the difference between the yield of the benchmark treasury issue and the issue's offering yield. Inverse Mills ratios are obtained from the first stage probit model, regressing the choice of industry audit specialists on firm and bond characteristics. Actual rating is the corresponding rating value assigned by S&P's or Moody's. E (Rating) is the counterfactual rating value. *, **, *** are 10%, 5% and 1% significant levels.

Variables	Credit Rating				Credit Spread			
	IAS Firms		Non-IAS Firms		IAS Firms		Non-IAS Firms	
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
<i>Firm Characteristics</i>								
Tenure	-0.14	-0.79	0.48***	5.65	0.01	0.45	0.08***	4.91
Leverage	1.10	0.31	9.18***	5.99	2.25***	4.02	2.40***	8.62
Firm Size	-1.54*	-1.95	-1.27***	-4.22	-0.22***	-5.22	-0.06*	-1.87
Tangibility	-0.04***	-3.52	-0.05***	-2.98	-0.01	-1.70	-0.01	-0.61
ROA	0.01	0.03	-0.16***	-2.88	-0.03***	-2.65	-0.01	-0.12
<i>Bond Characteristics</i>								
Putable	1.39	0.79	1.44	0.99	-1.42**	-2.07	0.14	0.87
Callable	0.79	1.57	0.70**	1.96	0.01	0.15	0.36***	3.89
Sinking Fund	0.49	0.38	0.11	0.11	-0.29	-0.92	-0.31	-0.60
Subordinated	-1.56	-0.74	-7.01***	-4.35	-0.18	-0.61	-0.49*	-1.79
Maturity	-0.05	-1.26	-0.14***	-4.67	0.01***	3.57	-0.01**	-2.12
Bond Size	0.18*	1.82	-0.33***	-4.00	0.01	0.60	0.03	1.66
Covenants	0.43***	5.02	0.20***	2.89	0.09***	5.09	0.11***	7.06
Speculative-grade					1.26***	8.11	1.47***	10.58
Inverse Mills Ratio	0.13	0.05	9.80***	4.58	-0.49**	-2.54	1.60***	6.60
Actual Rating-E (Rating)	-2.29***	-19.76	0.27***	5.28				
Actual Spread-E(Spread)					-0.70***	-34.69	0.18***	13.88
Year Fixed Effects	Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes	
N	2,785		7,491		2,785		7,491	
Adjusted-R ²	0.50		0.20		0.59		0.51	