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## THE ECONOMIC CONSEQUENCES OF AUDITOR INDUSTRY SPECIALIZATION

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### Key Words

*Audit Quality;  
Specialist Auditors;  
Industry Specialization;  
Corporate Bond.*

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### Abstract

*This paper examines the association between the employment of industry specialist auditors, and the degree of information asymmetry and the cost of debt of a client company. Based on product differentiation theory and signaling theory, it is hypothesized in this study that clients of industry specialist auditors are more likely to enjoy a lower level of information asymmetry and a lower cost of debt than clients of nonindustry specialist auditors. In addition, this study hypothesizes that the marginal economic value added by auditor industry specialization varies between financially troubled clients and financially healthy clients that seek external financing. The results indicate that clients of specialists experience lower information asymmetry level than clients of nonspecialists. This economic value provided by specialists is important and more pronounced for unregulated firms than for regulated firms. This inference, however, does not hold when information asymmetry is measured using analyst dispersion. In addition, clients hiring specialists enjoy better credit rating and lower cost of debt than clients of nonspecialists, and this economic value is more significant for risky firms than for healthy firms. However, these findings do not hold for each proxy of auditor industry specialization.*

### Introduction

The Securities and Exchange Commission (SEC) and the accounting profession agencies (e.g., Financial Accounting Standards Board) have increased their attention to the

role of external auditors in the capital markets in the light of recent widely publicized accounting scandals (e.g., Enron, WorldCom) and other high-profile events of fraudulent financial

reporting. In addition, the potential conflicts of interests between insiders (e.g., managers) and outsiders (e.g., investors) highlight the role that external auditors play as information intermediaries in the financial markets (Mansi *et al.* 2004). These scandals and potential conflicts of interest have heightened investors' concerns, prompting investors to demand higher quality auditors.

Prior literature (e.g., Craswell *et al.* 1995; Abbott and Parker 2000; Beasley and Petroni 2001) has conjectured that auditor industry specialization is an important dimension of audit quality. This paper examines the association between the employment of industry specialist auditors (hereafter, specialists) and the degree of information asymmetry and the cost of debt of a client company. In addition, this study tests whether the economic value of specialists is different for financially distressed clients from financially healthy firms who seek external capital. More specifically, this paper answers the following three questions:

1. Is there a relation between the employment of an industry specialist auditor and the level of information asymmetry of client companies?
2. Is there a relation between the employment of an industry specialist auditor and the cost of debt of client companies?

3. Is there a relation between the employment of an industry specialist auditor and the financial status of client companies?

### **Prior Literature**

In a free or regulated market, auditors provide economic benefits to their clients. This notion is supported by signaling (information) theory and product differentiation theory. The signaling theory argues that the choice of credible auditors not only signals the integrity of management, but also reduces information asymmetry between management and market participants. The product differentiation theory suggests that industry concentration by audit firms contributes to higher audit quality. It argues that audits are not a homogeneous commodity and that audit firms supply audits of varying quality.

Each theory creates a rank ordering of external auditors. For example, it has been contended that audit firms have incentives to maintain a positive reputation of providing high levels of audit quality by developing expertise within a specific industry (Gramling *et al.* 1999). In general, research on audit quality suggests that companies establish their reputation through significant investment in high quality products and services and that any reduction in the quality of their products or services will put these com-

panies' reputation capital at risk. Furthermore, reputable audit firms provide greater credibility to financial reporting. The employment of a high-quality auditor signals a manager's "optimism" for the performance of the company and enhances the confidence of skeptical investors.

## Research Methods

### Information Asymmetry Model Specification

#### Model (1)

$$SPREAD = \beta_0 + \beta_1 SPEC + \beta_2 TURNOVER + \beta_3 VOL + \beta_4 SIZE + \beta_5 PRI + \beta_6 COMP + \beta_7 LOSS + \beta_8 LOSS * SPEC + \beta_9 TEN + \beta_{10} TEN * SPEC + \beta_{11} REG + \epsilon).$$

#### Model (2)

$$TURNOVER = \mu_0 + \mu_1 SPEC + \mu_2 VOL + \mu_3 SIZE + \mu_4 S\&P500 + \mu_5 LOSS + \mu_6 SPEC * LOSS + \mu_7 TEN + \mu_8 TEN * SPEC + \mu_9 REG + \upsilon)$$

#### Model (3)

$$DISPERSION = \Omega_0 + \Omega_1 SPEC + \Omega_2 VOL + \Omega_3 SIZE + \Omega_4 ANA-LYST + \Omega_5 REG + \Omega_6 LOSS + \Omega_7 LOSS * SPEC + \Omega_8 TEN + \Omega_9 TEN * SPEC + \xi)$$

(See Table 1 for variable definition)

### Cost of Debt Model Specification

#### Model (4)

$$RATING = \beta_0 + \beta_1 SPEC + \beta_2 TEN + \beta_3 TA + \beta_4 LEV + \beta_5 PROF + \beta_6 COV + \beta_7 LOAN + \beta_8 DUR + \beta_9 DIFF + \beta_{10} RMRF + \beta_{11} SMB + \beta_{12} HML + \beta_{13} REGULATED + \beta_{14} TEN * SPEC + \upsilon)$$

#### Model (5)

$$CDebt = \alpha_0 + \alpha_1 SPEC + \alpha_2 TEN + \alpha_3 TA + \alpha_4 LEV + \alpha_5 PROF + \alpha_6 COV + \alpha_7 LOAN + \alpha_8 DUR + \alpha_9 DIFF + \alpha_{10} NONIVST + \alpha_{11} RMRF + \alpha_{12} SMB + \alpha_{13} HML + \alpha_{14} REG + \alpha_{15} TEN * SPEC + \zeta)$$

(See Table 1 for variable definition)

## Sample and Data

For all hypotheses testing, the samples of this study are restricted to publicly traded U.S. companies that were audited by Big Six auditors for fiscal years ending in 1992 through 1996. This time period is chosen because no mergers occurred among the Big Six audit firms. The samples are limited to those companies audited by Big Six firms for two reasons. First, these audit firms audit nearly ninety percent of U.S. publicly held companies (Wallace 1998). Second, there is a difference in audit quality between Big Six and non-Big Six auditors because of product differentiation (Menon and

**Table 1**

<i>SPREAD</i>	=	The average of $(\text{Bid-ask}/((\text{bid-ask})/2))$ .*
<i>TURNOVER</i>	=	The average of $(\text{trading volume} / \text{number of shares outstanding})$ .*
<i>DISPERSION</i>	=	The standard deviation of EPS forecasts.*
<i>SPEC</i>	=	A continuous (dichotomous) variable for specialists for year $t$ .
<i>VOLATILITY</i>	=	The standard deviation of daily returns.*
<i>SIZE</i>	=	The average of $(\text{price} \times \text{number of shares outstanding})$ *
<i>PRICE</i>	=	The average of CRSP reported price.*
<i>COMP</i>	=	The average of natural logarithm of $(1 + \text{number of NASDAQ dealers})$ .*
<i>LOSS</i>	=	A binary variable that is equal to one if client reports a negative income before extraordinary items in fiscal year $t$ and, zero otherwise.
<i>TEN</i>	=	A binary variable that reflects the length of client-auditor business relationship. It is equal to one if client-auditor relationship is at least five, and zero otherwise.
<i>REGULATED</i>	=	A binary variable that is equal to one if the client firm is in a regulated industry, and zero otherwise.
<i>S&amp;P500</i>	=	A binary variable that is equal to one if firm $i$ listed in S&P 500 index, and zero otherwise.
<i>ANALYST</i>	=	Natural logarithm of analysts issuing forecasts.

All variables with asterisks are measured over an test interval, starting seven days after the annual earnings announcement for fiscal year  $t$  and ending seven days before the first quarterly earnings announcement for fiscal year  $t + 1$ .

<i>CDebt</i>	=	The difference between the company's bond yield to maturity and a matched Treasury security's yield to maturity as of the last day of the calendar year. For firms with multiple bonds, <i>CDebt</i> is measured using the weighted average.
<i>RATING</i>	=	S&P rating, calculated by assigning a numerical value to a bond for firms issuing single bond. This numerical value increases as bond rating declines (i.e., AAA = 1, AA+ = 2, AA = 3, etc.). For firms with multiple bonds, <i>RATING</i> is measured using the weighted average.
<i>SPEC</i>	=	A continuous (dichotomous) variable for specialists for fiscal year $t$ . Specialists are identified in terms of industry market share, auditor industry portfolio, and number of clients.
<i>TEN</i>	=	Auditor-client relationship. This variable is equal to one if a firm maintains its auditors for at least five years, and zero otherwise.
<i>TA</i>	=	Company size, measured as the natural logarithm of the total assets, where total assets is the book value of the company's assets.
<i>LEV</i>	=	Company leverage, measured as long-term liability scaled by total assets.
<i>PROF</i>	=	company profitability, computed as operating income after depreciation divided by total assets.
<i>COV</i>	=	Company coverage, computed as operating income after depreciation scaled by interest expense (data item # 15).
<i>LOAN</i>	=	A binary variable equal to one if a firm has a bank debt or notes payable, and zero otherwise.
<i>DUR</i>	=	The duration of a single representative bond or the weighted average of duration of multiple bonds.
<i>DIFF</i>	=	The difference between the yield on Baa-rated index and the yield on Aaa-rated index.
<i>NONIVST</i>	=	It is equal to one if the bond is classified by S&P as a noninvestment-grade bond, and zero otherwise.
<i>RMRF</i>	=	The CRSP value-weighted market index return minus the return on one-month Treasury-bill return.
<i>SMB</i>	=	The return on a small stock portfolio minus the return on a large stock portfolio.
<i>HML</i>	=	The return on stock portfolio of high book-to-market ratios minus the return on stock portfolio of low book-to-market ratios.
<i>REGULATED</i>	=	A binary variable that is equal to one if the client firm is in regulated industry, and zero otherwise.

Finally, this paper partitions the bond sample into two subsets: *INVESTMENT* vs. *NONIVST* to test whether the economic value added by specialists is larger for risky clients than for healthy clients.

Williams 2001). Using certain sample selection procedures, the bid-ask spread data is available for 3,960 firms (11,531 firm-year observations) only. Also, the sample selection procedure yields 4,956 firm-year observations representing 2,139 firms for the analyst forecast dispersion model, a subset of the whole sample. As for the bond data, the final sample includes 2,828 firm-year observations (855 firms).

## Results

The results reported in this study indicate that auditor industry specialization, as measured by auditor portfolio share, is negatively related to the bid-ask spread and positively related to trading turnover, a sign of lower information asymmetry. These results, however, do not hold when auditor industry specialization is measured using auditor market share and number of clients. The association between auditor industry specialization and information asymmetry is explored further using the weighted market share, a proxy for auditor industry specialization. Based on this measurement, results show that clients of specialists are associated with lower bid-ask spread and higher trading turnover than clients of nonspecialists. This association becomes more significant when the interaction variables, auditor tenure and specialists and loss reported firms and specialists, are excluded from the

spread and volume regression models. In addition, the value of auditor industry specialization is more important and pronounced in unregulated industries than in regulated industries. As for the impact of auditor industry specialization on analyst forecasts errors, the main and supplementary analyses show no association between all designations of auditor industry specialization and analyst dispersion. The result still holds after differentiating between regulated and unregulated industries.

Furthermore, the results show a negative relationship between auditor industry specialization and credit rating. This finding is consistent across all designations of auditor industry specialization, suggesting that clients hiring specialists receive better credit rating than clients hiring nonspecialists. Also, auditor industry specialization is negatively related to cost of debt. This result holds when auditor industry specialization is measured using auditor portfolio share but not auditor market share and number of clients. Additional supplementary analyses present more evidence on the negative association between auditor industry specialization and cost of debt. For example, auditor industry specialization, proxied by the weighted market share in terms of sales, total assets and number of clients, has a negative and significant association with cost of debt. This association holds even after

controlling for credit rating and analyst coverage. Finally, results show that the association between auditor industry specialization and cost of debt varies between investment and noninvestment grade bonds. The economic value added by specialists is larger for risky firms than for healthy firms. This result holds only when industry specialization is measured using auditor portfolio share and weighted market share in terms of number of clients.

### Conclusion

This study examines the relationship between the employment of industry specialist auditors, and the degree of information asymmetry and the cost of debt of a client company. The results, in sum, indicate that clients of specialists experience lower information asymmetry level than clients of nonspecialists. This economic value provided by specialists is important and more pronounced for unregulated firms than for regulated firms. This inference, however, does not hold when informa-

tion asymmetry is measured using analyst dispersion. In addition, clients hiring specialists enjoy better credit rating and lower cost of debt than clients of nonspecialists, and this economic value is more significant for risky firms than for healthy firms. It should be noted, however, that these findings do not hold for each proxy of auditor industry specialization.

The contribution of this study is to increase understanding of how audit quality is associated with companies' information asymmetry and cost of debt. This is important to audit firms and their clients. On the audit firm's level, the probability of mitigating the information asymmetry level may influence the demand for the services of specialists. On the clients' level, auditor industry specialization may or may not appear a valuable monitoring device that enhances the reliability of the reported accounting numbers and protects the rights of shareholders and bondholders.

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## الملخص

### الأثار الاقتصادية لمهنة المراجعين المتخصصين

علي راشد المطيري  
جامعة الكويت

تهدف هذه الدراسة إلى اختبار الأثر الاقتصادي لاستخدام المراجعين المتخصصين على درجة تباين المعلومات وتكلفة دين الشركات العميلة. وعلى أساس نظرية تنوع المنتجات (Product Differentiation Theory)، ونظرية الإنذار المبكر (Signaling Theory) افترضت الدراسة أن درجة تباين المعلومات لعملاء المراجعين المتخصصين هي أقل من درجة تباين المعلومات لعملاء المراجعين غير المتخصصين. وافترضت الدراسة أيضاً أن عملاء المراجعين المتخصصين ينعمون بمعدل تكلفة اقتراضي أقل من عملاء المراجعين غير المتخصصين. كما افترضت الدراسة أن القيمة الاقتصادية الحدية التي يضيفها المراجع المتخصص تختلف بين عملاء المراجعة الذين يواجهون مشكلات مالية، والعملاء الذين لا يواجهون مشكلات مالية. وتوصلت الدراسة إلى أن درجة تباين المعلومات لدى العملاء الذين لديهم مراجعين متخصصين أقل من درجة تباين المعلومات عند العملاء الذين لديهم مراجعين غير متخصصين. وتعد هذه القيمة التي يقدمها المراجعون المتخصصون مهمة وأكثر وضوحاً في الشركات التي لا تخضع لتشريعات حكومية خاصة مقارنة مع تلك التي تخضع لتشريعات حكومية خاصة. وعلى أية حال، لا تنطبق النتيجة السابقة عند استخدام تباين آراء المحللين الماليين في قياس تباين المعلومات. إضافة إلى ذلك، فإن المعدل الائتماني للعملاء الذين يعينون مراجعين متخصصين أفضل، وأن تكاليف ديونهم أقل من العملاء الذين يعينون مراجعين غير متخصصين، وأن هذه القيمة الاقتصادية ذات دلالة مهمة للشركات ذات المخاطرة المالية، مقارنة مع تلك الشركات التي لا تواجه مثل هذه المخاطر.

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