

The Impact of Audit-Firm level and Individual-Auditor level Industry Expertise on the Asymmetric Timeliness of Earnings

SUMMARY: In this study, we examine the association of earnings conservatism with an auditor's industry expertise measured at both *individual auditor* level and *audit firm* level. Using a sample of listed firms in Taiwan, where an audit report has to be audited and certified with the name of two signing auditors in addition to a signature representative of an audit firm, we find that there is a positive association between the signing auditors' industry expertise and earnings quality. The evidence is consistent with the notion in Krishnan (2005) that auditor's industry expertise moderates the tendency of auditees to delay the recognition of economic losses in earnings. However, the result is never driven by audit-firm's expertise but the signing auditors' expertise. The findings also suggest that the effectiveness of auditors' industry expertise on enhancing accounting conservatism varies across individual auditors within the same audit-firm and even within the signing auditors.

Key Words: *Industry expertise, Conservatism, Earnings quality, Asymmetric timeliness*

Data Availability: The data are from public sources identified in the manuscript.

INTRODUCTION

The objective of this study is to provide empirical evidence about whether accounting conservatism is associated with auditor industry expertise, measured at both *individual auditor* level and *audit firm* level. Specifically, we aim to examine if auditors' industry expertise mitigates the tendency of firms to delay the recognition of economic losses in earnings. We focus on earnings conservatism not only because it is a fundamental characteristic of financial reporting (Ball et al. 2000) but also this feature of earnings facilitates effective monitoring of managers and contracts (Watts 2003). As discussed in prior research, auditing plays an important role in enforcing asymmetric timeliness of earnings. However, the effectiveness of auditing in enhancing this feature of earnings is likely to vary with the auditor's expertise. Auditors with more industry experience are better able to identify errors, detect frauds and comply with auditing standards (Bedard and Biggs 1991; Johnson et al. 1991; O'Keefe et al. 1994). Hence, High quality auditors are expected to influence asymmetric timeliness of earnings by constraining aggressive reporting of accruals and persuading clients to report economic losses in a timely fashion.

A number of studies have discussed the issue about the effect of industry expertise on audit quality, audit fee, and earnings quality. For instance, Krishnan (2005) identifies factors such as auditors' industry expertise that enhances the timeliness of earnings. Balsam et al. (2003) and Krishnan (2003) suggest that discretionary accruals are smaller for clients of auditor industry specialists at the audit firm level, i.e., national industry experts. Some other papers reexamine this evidence using the city-national framework (Ferguson et al. 2003; Francis et al. 2003, 2005, 2006). Francis et al. (2003, 2005) find that audit fee in the U.S. audit market is higher for industry experts compared to the non-experts, and city-level leadership is what matters in terms

of auditor pricing rather than national leaders alone. Francis et al. (2006) also provide evidence that office-specific expertise dominates national measure of industry expertise in explaining differential Big 5 audit quality.

Our study extends prior research by exploring the association between accounting conservatism and industry expertise, measured as both *individual-auditor* and *firm-level* leadership. Francis et al. (2003, 2005) indicate that there are two contrasting views of conceptualizing the operation of Big 5 CPA firms. First, the firm-wide perspective assumes that audit firms capture industry expertise through knowledge-sharing practices such as internal benchmarking of best practices, the use of standardized industry-tailored audit programs, and extending the reach of professionals from their primary local-office clientele to other clients via travel and internal consultative practices. That is, this perspective implicitly assumes that the industry expertise is homogenous across individual auditors within the same firm. Firm-wide studies using national-level expertise have documented that audit quality is higher for auditors that are national-level specialists (Balsam et al. 2003; Krishnan 2003, 2005). An alternative perspective (i.e. office-level perspective) is that auditors' expertise is indelibly tied to individual professionals and their deep personal knowledge of clients and therefore cannot be readily captured and distributed by the firm to other offices and clients.¹ Some studies provide partial evidences on this perspective. For example, Francis et al. (2003, 2005, 2006) find that auditor specialists have higher audit fees for auditor specialists, and the higher audit fees are driven by city-specific industry specialists, either alone or joint city and national-level industry specialists.

Without respect to which perspective, those studies explicitly or implicitly assume that industry expertise is homogeneous across individual auditors within the same audit firm or

¹ Law firms have made similar arguments about human capital and client-specific expertise (Gilson and Mnookin 1985). Coff (1997) also points out firms that use strategic human capital face challenging management control issues, especially since the individual, not the firm, owns the knowledge.

within the same city for a given firm. By contrast, in this study, we first build on Francis et al. (2005), Krishnan (2005) and Chi (2005) to examine whether the accounting conservatism is associated with industry specialists, measured as both *individual-auditor* and *audit firm-level* leadership, in order to provide insight into whether the association of earnings quality with industry expertise varies considerably across individual auditors within the same firm. Second, we also investigate the association of accounting conservatism with industry expertise at *individual-auditor* level in order to provide a better understanding of relative efficiency between lead auditor and concurring auditor in enhancing the asymmetric timeliness in earnings. Since an audit report of a listed company in Taiwan has to be signed by two audit partners (lead auditor and concurring auditor) in addition to a signature representative of an audit firm, Taiwan data provides us with a unique setting to address these two issues.

Following prior conservatism literature and other related research (Basu 1997; Krishnan 2005), we measure earnings conservatism as the degree to which a firm's accounting income is timelier in reflecting changes in expected losses than gains in a given fiscal year. To the extent that industry specialist auditors have more knowledge and the ability to detect significant irregularities and errors, they would be more likely to persuade the auditees to report bad news in a timely manner. Most importantly, we revise the industry expertise metric of prior studies at the audit-firm level (Krishnan 2003) and measure the industry expertise metric for the signing auditors, including the lead auditor and the concurring auditor, as well as overall audit firms.

There are two key findings. First, we find that the asymmetric timeliness of earnings for bad news is greater for clients audited by specialist signing auditors (i.e., the lead or concurring auditor is an industry specialist) relative to clients audited by non-specialist signing auditors. However, we don't find that audit firm's expertise is significantly different from non-leaders in

enforcing the timely recognition of economic losses in earnings, a result contradictory to the findings in prior studies. These findings lend support to the notion that the effectiveness of auditor expertise on earnings conservatism varies among auditors within the same audit firm. That is, the ability of auditors' industry expertise to persuade their clients to recognize losses in a timely manner is primarily attributable to the signing auditor specialists rather than auditor specialists at the firm level.

Second, when we further investigate the relative efficiency on earnings conservatism between the lead auditor and the concurring auditor, we find that the association is more pronounced for the lead auditor's expertise than for the concurring auditor's expertise. This suggests that even in the same signing group within the same audit firm, the effectiveness of auditor expertise on accounting conservatism differs between the lead auditor and the concurring auditor.

Overall, our analyses provide compelling evidence that auditor industry expertise is the results of the signing auditors' industry leadership based on individual-level clienteles rather than a firm-wide phenomenon based on clienteles of the whole CPA firms. That is, the evidence in our study supports that accounting conservatism resides in the individual expertise of signing auditors' professionals, and is not captured and distributed more broadly to other individuals within the firm through knowledge sharing practices. Our results also appear to imply the following hierarchy of earnings conservatism as Francis et al. (2005, 2006) have done: In our context, accounting conservatism is higher for the signing auditors' specialists relative to the whole CPA firm, and more importantly, firm-level expertise alone are never associated with higher earnings conservatism to the default comparison group.² In addition, at the individual-

² In our study, we do not further investigate the association of earnings conservatism with industry expertise at the city-specific level for the following reasons. First, in the U.S., Big 5 audit firms are organized as national

level, the effect of the lead signing auditor expertise on enhancing earnings conservatism is shown to be more pronounced than the concurring auditor expertise.

Our study contributes to several areas of literature. The first one is the literature on the asymmetric timeliness of recognizing economic losses in earnings. Although Basu et al. (2000) have found that earnings of clients audited by Big 8 are more conservative than those of clients audited by Non-Big 8, and Krishnan (2005) also indicated that the conservatism also varies among Big 6 auditors, we further extend this line of research by providing evidence that this phenomenon even varies across individual auditors within the same audit firm and within the signing auditors.

The second is on the literature of auditor expertise. Here we extend prior research by investigating how auditors' industry expertise affects earnings conservatism measured at both *audit firm* level and *individual auditor* level. The measures of industry expertise of prior studies are based on the assumption that specialist auditors are homogenous within the same audit firm (i.e. firm-level perspective; e.g. Balsam et al. 2003; Krishnan 2003) or within the same city for a given audit firm (i.e. city-office perspective; e.g., Reynolds and Francis 2000; Francis et al. 2006). Though it is well documented that earnings quality or auditor quality is higher for specialist auditors at the *audit-firm* level, regardless of national-specific or city-specific level, there is no direct evidence on the positive association between earnings quality and specialist auditors at the *individual auditor* level (in particular the signing auditors), and on the differential effect of auditors within the same audit firm or even within the same signing auditor group. In

partnerships with national administrative offices that set firm-wide policies and provide technical support for their city-based practice offices. In sharp contrast, the city offices in Taiwan are mainly located in only 5 cities (i.e. Taipei, Taichung, Kaoshiung, Tainan, and Hsinchu), which are very close to one another, since the area of Taiwan territory is smaller. Second, since the signing auditors are primarily concentrated in the Taipei-office, clients are likely to be audited and signed jointly by two auditors that belong to different city-offices. We don't examine the city-specific level industry leadership for lack of public available data on city-related clients and auditors

light of this issue, we compare the relative effectiveness of the whole audit firm to the signing auditors within the same audit firm as well as the lead auditor to the concurring auditor within the same signing auditor group.

The rest of this paper is organized as follows: In section 2, we describe the institution background and prior research. In section 3, we discuss the research design and data. In section 4, we describe the findings, and section 5 concludes this paper.

BACKGROUND AND LITERATURE

Institutional Background

In the United States, the financial report of a publicly listed company is required to be certified in the name of the CPA firm, but not the signing auditors. Therefore, the extant studies on industry expertise using U.S data are primarily based on firm-level industry auditor expertise. However, a number of studies find that industry knowledge and expertise in auditing derived from the firm's human capital investments in accounting professionals and their experiences in servicing clients mainly out of city-based practice offices (Francis et al. 1999; Solomon et al. 1999). Hence recent studies on industry expertise re-value this research in light of city-level specialists (Francis et al. 2003, 2005, 2006).

In sharp contrast, Taiwan Securities and Futures Bureau (similar to the Securities and Exchange Commission in the U.S.) has passed Article 2 of *Criteria Governing Approval for Auditing and Certification of Financial Reports of Public Companies by Certified Public Accountants* (hereafter CGAAC) in 1972. This regulation requires that the financial report of a public company in Taiwan must be audited by practicing certified public accountants from a united audited firm and certified in the name of the practicing auditor. Afterward, to enhance the

credibility of audit quality, Securities and Futures Bureau amended the CGAAC law in 1982, and mandated that the financial report of a listed company is required to be jointly audited and certified in the name of two practicing auditors since 1983. That is, the financial report must be audited by two practicing certified public accountants and certified in the name of the two auditors, the first one is called “lead auditor” for taking charge of most of the audits and the second one is “concurring auditor” for assisting the lead auditor.

This unique regulation provides us one setting for further examining whether individual auditor’s expertise is indelibly tied to individual professionals and their deep personal knowledge and experience of clients, and thus cannot be readily captured and distributed by the firm to other individual auditors within the same firm or within the signing auditor group³.

Literature

Conservatism is potential useful in corporate governance for helping prevent excess payments to managers (Watts 2003), providing managers with incentives to avoid taking on negative NPV projects (Ball 2001; Ball and Shivakumar 2005), increasing the likelihood that managers will abandon or shut down negative NPV projects because it generates timely signals that can trigger further investigation by the board (Watts 2003). Traditional definition of conservatism is “anticipate no profit, but anticipate all losses” (Bliss 1924). Watts (2003) defines conservatism as the differential verifiability required for recognition of profits versus losses and provides four explanations: contracting, shareholder litigation, taxation, and accounting

³ Banker et al. (2003) reports that partners have much higher compensation relative to other types of service personnel (professionals, administrative support staff) in CPA firms by demonstrating that CPAs have proportionately higher marginal revenue product. In Taiwan, partner auditors’ pay is based on their billings, rather than the firm’s profits. Also, auditors may assume that when the firm’s reputation declines they can simply take their clients and leave (Geoffrey et al. 2002; Schneyer, 1998). For example, Beio-Juanlu is an outstanding auditor at Deloitte & Touche in Taiwan, who specializes in both the communication and banking industries. In 2003, he took his clients (about 10% of all clients at Deloitte & Touche audit firm) and about 130 employees to Ernst & Young (<http://www.udndata.com>).

regulation. Basu (1997) uses negative and positive stock returns to proxy for bad news and good news about future cash flows, and he indicates that the contemporaneous association between earnings and returns is stronger for bad news than for good news. Because Basu's method has been utilized extensively by many researchers and his findings have been replicated internationally (Pope and Walker, 1999), we use this asymmetric timeliness of earnings as an indication of accounting conservatism.

Although the timely incorporation of losses has become the most important feature of income reporting (Ball et al. 2000), it is affected by auditing because financial statements are the result of management's representations and the auditors' assurance. However, the effectiveness of auditing varies with the auditor's expertise. As in Krishnan (2005), he demonstrates that auditors' industry expertise moderates the tendency of firms to delay recognition of economic losses in earnings.

Specialist auditors typically have both the incentives and the ability to provide high quality audit services. For instance, industry-focused audit firms invest more in technologies, physical facilities, personnel, and organization control systems that improve the quality of audits in the audit firms' focal industries (Simunic and Stein 1987). In addition, industry experienced auditors are better capable of detecting errors among clients within their industry specialization than those outside their specialization (Owhoso et al. 2002; Bedard and Biggs 1991; Wright and Wright 1997). Specialist auditors also exhibit greater compliance with auditing standards than non-auditor specialists (O'Keefe et al. 1994) and are less likely to be associated with SEC enforcement actions (Carcello and Nagy 2004).

Some other studies also indicate that earnings quality is higher for client firms audited by national-level industry specialists than non-specialists (Balsam et al. 2003; Krishnan 2003,

2005). Financial analysts rank clients of industry-specialist audit firms higher than clients of non-specialists in unregulated industries (Dunn and Mayhew 2004). Recent structural shifts of audit firms to the direction of greater industry focus suggest that industry specialization plays an increasingly important role in audit quality (Hogan and Jeter 1999; Solomon et al. 1999). Godfrey and Hamilton (2005) also find that R&D intensity is positively associated with a firm's choices of auditors who specialize in auditing R&D contracts.

Another stream of literature on industry expertise argues that industry expertise have both city-specific characteristics as well as firm-wide dimension. Using Australian and U.S. data, respectively, Ferguson et al. (2003) and Francis et al. (2003) indicate that audits are priced as if both firm and city-specific market shares jointly affect the market's perception of auditor industry expertise. However, auditors that are national industry specialists alone without also being the city-specific industry specialist do not earn a premium. Further, Francis et al. (2003) also find a premium for auditors that are city-specific specialists (alone), without being a national industry specialist. Francis et al. (2006) provide further evidence that the audit quality is higher when auditors is a city-specific specialists, and find no evidence that being a national industry leader (alone) without also being a city-specific industry leader is associated with higher audit quality.

Most of these findings suggest that an auditor's industry specialization provides value to clients, and that capital markets view audits provided by industry specialists as having higher quality or earnings quality. However, the literature mentioned above focuses primarily on firm-level industry expertise, regardless of the national or city-specific level. Also they implicitly assume that industry expertise is homogeneous across individual auditors within the same city for a given audit firm. One exception is Chi and Chin (2005) which examines the association of

an auditor’s expertise under an *individual auditor*’s legal regime with audit quality and finds that the effect of an auditor specialist on audit quality varies across auditor legal regimes. In light of this issue, our study thus builds on Francis et al. (2005, 2006), Chi and Chin (2005), and Krishnan (2005) to further examine the association of accounting conservatism and industry expertise at both the *firm-level* and the *individual-auditor* level.

RESEARCH DESIGN, SAMPLE SELECTION, AND DATA SOURCES

Measures of Auditor Industry Expertise

Following and extending prior studies (Yardly et al. 1992; Kwon 1996; Gramling and Stone 2001; Balsam et al. 2003; Krishnan 2003; Chi and Chin 2005), we use auditor portfolio shares, *EXPERT*, as a proxy for industry expertise both at the *individual-auditor* level (including the lead auditor and the concurring auditor) and at the *auditor-firm* level.

Measure of individual auditor expertise

First, we compute the individual auditor’s portfolio share⁴ for two types of signing auditors (lead and concurring auditor), denoted *EXPERT_PS_{ikl}* and *EXPERT_PS_{ikc}*, respectively, in a given industry and year as follows:

$$EXPERT_PS_{ikt} = \frac{\sum_{j=1}^{J_{ikt}} SALE_{ijkt}}{\sum_{k=1}^K \sum_{j=1}^{J_{ik}} SALE_{ijkt}} \quad (1)$$

⁴ Some studies have also used an auditor’s industry market shares as an alternative measure of auditors’ industry expertise (see Gramling & Stone [2001] for a review). Following Krishnan (2003, 2005), we do not use industry market shares. Krishnan (2003) indicates that industry market shares and portfolio shares are highly correlated, but the former may be a noisier measure of auditors’ industry expertise. He finds that industries that are identified as an auditor’s specialty, based on the portfolio share measure, are also identified as specialty based on the industry market share measure, but not vice versa. He also points out that industry market shares exhibit more variation relative to portfolio shares in a year-by-year comparison. Since specialist auditors are expected to undertake efforts to preserve their competitive advantage, one would expect to see less variation in auditors’ industry expertise, at least in the short-term.

SALE denotes client sales revenue, and the numerator is the sum of the sales of all J_{ikt} clients of auditor i , in industry k , with a given type of signing auditor t ($t=l$ if the signing auditor is lead auditor, $t=c$ if the signing auditor is concurring auditor). The denominator in equation (1) is the sales of all clients of auditor t in audit firm i summed over all K industries. Since an auditor's industry expertise may change over year, we calculate portfolio shares each year.

We subsequently identify industries in which $EXPERT_PS_{ikl}$ (or $EXPERT_PS_{ikc}$) is considered an auditor specialist. We code the top-two $EXPERT_PS_{ikl}$ (or $EXPERT_PS_{ikc}$) as an auditor specialist.^{5 6} We set a dummy variable $EXPERT_L$ ($EXPERT_C$) equal to one if the lead (concurring) auditor is an industry specialist, and zero otherwise.

Measures of audit-firm expertise

Next, we estimate auditor portfolio share, $EXPERT_PS_{ikf}$, in a given audit firm, industry, and year as a proxy for auditor specialist as follows:

$$EXPERT_PS_{ikf} = \frac{\sum_{j=1}^{J_{ikf}} SALE_{ijkf}}{\sum_{k=1}^K \sum_{j=1}^{J_{ikf}} SALE_{ijkf}} \quad (2)$$

where the numerator is the sum of the sales of all J_{ik} clients of audit firm f in industry k and the denominator in equation (2) is the sales of all clients of audit firm i summed over all K industries.

⁵ Some studies use arbitrary market share percentages such as 10% or 15% to denote auditor industry expertise (Craswell et al. 1995; Ferguson and Stokes 2002). As Francis et al. (2005) states in their, since there is no method of knowing the level of market share that could distinguish between one firm or auditor being perceived to be a specialist while another one is not, we use rankings that do not have to arbitrarily specify what these market shares are.

⁶ Following Chi and Chin (2005), our indicator variable is for the top two ranked auditors. Chi and Chins' (2005) iterative process indicates that only top and second-ranked auditors have significant coefficients. Thus, we define the top two accounting firms as specialists in our paper. In addition, based on the distribution of our sample across industries (please see Table 2 for detail), the averaged portfolio shares for top-two ranked lead (concurring) auditors amounts to 55 percent (77 percent). However, the averaged portfolio shares for the third-ranked lead auditor is only 9 percent (11 percent), far less than those of the top two auditors. Thus, we exclude the third-ranked auditor as an industry specialist.

Since an audit firm's industry expertise may change over year, we calculate portfolio shares each year.

Then, the final step involves identifying industries in which $EXPERT_PS_{ikf}$ is considered an auditor specialist. We code the top-two $EXPERT_PS_{ikf}$ as an industry specialist.⁷ We set a dummy variable $EXPERT_F$ equal to one if the audit firm is an auditor specialist, and zero otherwise.

Models for Empirical Analysis

We require firm-specific conservatism measures that can be used as dependent variables in our analysis. In this paper, the conservatism measure is based on asymmetric timeliness of recognition of economic losses in earnings in Basu (1997).

Following Basu (1997), we first estimate equation (3) respectively for clients of specialist and non-specialist auditors and compare the magnitude of coefficient for the interaction variable, $R_{it} \times DR_{it}$ between two groups of clients. Here observations are classified as clients of specialist auditors or clients of nonspecialist auditors based on whether they are audited by an audit firm which is considered a specialist in that year or by the signing auditors (no matter lead auditor or concurring auditor) that are considered specialists in that year.

$$X_{it} / P_{it-1} = \beta_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} \times DR_{it} + \varepsilon_{it} \quad (3)$$

where X_{it} is net income per share of firm i in year t , and P_{it-1} is price per share at the beginning of the year. R_{it} represents annual return calculated over a 12-month period ending four months after the fiscal year end. And DR_{it} is a dummy variable that equals 1 if $R_{it} < 0$ and 0 otherwise. We expect that the greater timeliness of earnings to bad news over good news is greater for clients of

⁷ We define the top two ranked auditors as specialists for the same reasons discussed in footnote 6.

specialist auditors than for clients of non-specialist auditors. Thus, the coefficient of β_3 for clients of specialist auditor is expected to be greater than that for clients of non-specialist auditor.

Next, we also estimate equation (4) by including an additional dummy variable *EXPERT*. *EXPERT* is coded 1 if the audit firm or the signing auditors (no matter lead auditor or concurring auditor) are classified as industry specialists and 0 otherwise.

$$\begin{aligned}
X_{it} / P_{it-1} = & \alpha_0 + \alpha_1 R_{it} + \alpha_2 DR_{it} + \alpha_3 R_{it} \times DR_{it} \\
& + \beta_0 EXPERT_{it} + \beta_1 EXPERT_{it} \times R_{it} + \beta_2 EXPERT_{it} \times DR_{it} \\
& + \beta_3 EXPERT_{it} \times R_{it} \times DR_{it} + \varepsilon_{it}
\end{aligned} \tag{4}$$

We are mainly interested in the sign of the coefficient on $R_{it} \times DR_{it} \times EXPERT_{it}$. Consistent with the notion discussed in equation (3), β_3 is expected to be positive. That is, clients of specialist auditors are hypothesized to have greater asymmetric timeliness of earnings relative to clients of non-specialist auditors.

Since individual auditors' expertise is indelibly tied to individual professionals and their deep personal knowledge and experience of clients, and thus may not be readily captured and distributed by the firm to other individual auditors within the same audit firm. To further determine if earnings conservatism differs systematically across different auditors within the audit firm, we extend the national-city framework developed in Ferguson et al. (2003) and Francis et al. (2005, 2006) by partitioning the observations into four auditor groupings: (1) auditor is an industry specialist at audit-firm level (alone) but not at firm-level, (2) auditor is an industry specialist at individual-level (alone) but not at firm-level, (3) auditor is an industry specialist joint at individual and firm-level, and (4) non-leaders.

$$\begin{aligned}
X_{it} / P_{it-1} = & \alpha_0 + \alpha_1 R_{it} + \alpha_2 DR_{it} + \alpha_3 R_{it} \times DR_{it} + \beta_0 EXPERT \#1_{it} \\
& + \beta_1 EXPERT \#1_{it} \times R_{it} + \beta_2 EXPERT \#1_{it} \times DR_{it} + \beta_3 EXPERT \#1_{it} \times R_{it} \times DR_{it} \\
& + \gamma_0 EXPERT \#2_{it} + \gamma_1 EXPERT \#2_{it} \times R_{it} + \gamma_2 EXPERT \#2_{it} \times DR_{it} \\
& + \gamma_3 EXPERT \#2_{it} \times R_{it} \times DR_{it} + \delta_0 EXPERT \#3_{it} + \delta_1 EXPERT \#3_{it} \times R_{it} \\
& + \delta_2 EXPERT \#3_{it} \times DR_{it} + \delta_3 EXPERT \#3_{it} \times R_{it} \times DR_{it} + \varepsilon_{it}
\end{aligned} \tag{5}$$

The experiment variables of interest are three auditor indicator variables. *EXPERT#1* equals 1 if auditor is an industry specialist at audit-firm level (i.e., the audit firm is considered an industry expertise), but not at individual auditor level. *EXPERT#2* equals 1 if auditor is an industry specialist at individual auditor level (e.g., lead or concurring auditor is an industry specialist), but not at audit-firm level. *EXPERT#3* equals 1 if auditor is an industry specialist at both individual auditor level and audit-firm level. The default comparison is that auditors are non-leaders. We primarily focus on comparing the coefficients of β_3 , γ_3 and δ_3 .

As we discussed in the background section, the financial report of a listed company in Taiwan is required to be jointly audited and certified in the name of two practicing auditors. Since the industry specialization may differ between the lead and concurring auditor, hence we are also interested in the question: Whether accounting conservatism varies with different signing auditor's expertise within the same signing auditor group (i.e., *lead auditor expertise* or *concurring auditor expertise*)? To address this question, we estimate equation (6) in the framework similar to equation (5) except for the definitions of *EXPERTs*.

$$\begin{aligned}
X_{it} / P_{it-1} = & \alpha_0 + \alpha_1 R_{it} + \alpha_2 DR_{it} + \alpha_3 R_{it} \times DR_{it} + \beta_0 EXPERT \#1_{it} \\
& + \beta_1 EXPERT \#1_{it} \times R_{it} + \beta_2 EXPERT \#1_{it} \times DR_{it} + \beta_3 EXPERT \#1_{it} \times R_{it} \times DR_{it} \\
& + \gamma_0 EXPERT \#2_{it} + \gamma_1 EXPERT \#2_{it} \times R_{it} + \gamma_2 EXPERT \#2_{it} \times DR_{it} \\
& + \gamma_3 EXPERT \#2_{it} \times R_{it} \times DR_{it} + \delta_0 EXPERT \#3_{it} + \delta_1 EXPERT \#3_{it} \times R_{it} \\
& + \delta_2 EXPERT \#3_{it} \times DR_{it} + \delta_3 EXPERT \#3_{it} \times R_{it} \times DR_{it} + \varepsilon_{it}
\end{aligned} \tag{6}$$

where *EXPERT#1* equals 1 if, at the individual level, only the lead auditor is an industry specialist, but the concurring auditor is not. *EXPERT#2* equals 1 if, at the individual level, only

the concurring auditor is an industry specialist, but the lead auditor is not. *EXPERT#3* equals 1 if both the lead auditor and concurring auditor are considered industry specialists. Similarly, we primarily focus on comparing the coefficients β_3 , γ_3 and δ_3 .

Sample Selection and Data Sources

Our sample, obtained from the Taiwan Economic Journal Database, consists of all listed firm-years from 1987 to 2004. The sample selection procedure and its effect on sample size are summarized in Panel A of Table 1. We first exclude financial services and insurance industries from the sample because their earnings quality are fundamentally different from those of other firms due to regulation and the financial nature of their operations. We then exclude firms that have missing financial data. Following Basu (1997) and Krishnan (2005), for each year, we further exclude observations falling in the top or bottom 1% of price-deflated earnings or stock returns or expertise variables to reduce the impact of these extreme values on results. This process leaves us with results for a final sample of 5,741 observations.

Panel B of Table 1 shows the distribution of 5,741 firm-year observations across every 3-year sub-periods. The number of observations increases in each sub-period for the number of listed firms has increased over time.

[Insert Table 1 here]

EMPIRICAL RESULTS

Descriptive Statistics

For illustrative, Table 2 presents the distribution of observations across industries and the average portfolio shares for the top two ranked auditor expertise measured at the firm level and

individual level. Among the industries, electronic industry has the highest proportion of observations (31.6 percent) and then the Textiles (11.3 percent) and chemical (6.25 percent). Averaged across all 22 industries, the top-ranked audit firm has an average portfolio share of 38% and the second-ranked audit firm 30 percent. We also report industry market by the signing auditors for each of the 22 industry categories. Averaged across all 22 industries, the average portfolio shares are as follows: The top-ranked (second-ranked) lead auditor has an average portfolio share of 40 percent (15 percent), the top-ranked (second-ranked) has an average portfolio share of 56 percent (21 percent). The averaged portfolio shares for the third-ranked auditors are much less than the top two auditors; we don't list them in Table 2 for simplicity. From the individual-level columns in Table 2, we got an outline that the industry expertise differs between the lead and concurring auditors. In addition, our sample contains 72 CPA firms with an averaged portfolio share of 36 percent, 469 lead signing auditors with an averaged portfolio share of 27.46 percent, and 546 concurring auditors with an average portfolio share of 31.54 percent (untabulated).

[Insert Table 2 here]

Descriptive statistics for sub-samples and results of univariate analysis based on t-tests and non-parameter two-sample tests are presented in Table 3. The observations are partitioned into clients audited by industry specialist and by non-specialist auditors. About 9.5 percent (544/5,741) of sample firms are classified as clients of specialist auditors according to expertise measured at firm level, compared to about 53 percent (3,024/5,741) according to expertise measured at individual level. In Panel A, for each year, for each audit firm, top two portfolio shares are coded as industries where the audit firm is considered an industry specialist in that

year. In Panel B, the signing auditor (lead auditor or concurring auditor) is considered an industry specialist if top two portfolio shares are coded as industries.

In Panel A, compared with clients of non-specialist auditors, clients of specialist auditors exhibit smaller percentage of loss observations (difference significant at the 0.05 level for a two-tailed test) and has slight percentage of observations with negative returns. Relative to clients of specialist auditors, clients of nonspecialist auditors appear to be smaller in size and annual returns, and the difference are all significant at least 0.05 level for a two-tailed test. Furthermore, for earnings, mean and median value is higher for clients of specialist auditors. This seems to be contradictory to the notion that auditors' expertise moderates the tendency of auditees to delay the recognition of economic losses in earnings discussed in prior studies. Two confounding factors would affect the direction and magnitude of this association. One is that auditors with industry expertise can enhance the credibility of financial reports and play an important role in enforcing timely recognition of losses; hence clients of specialist auditors could show smaller earnings. The other conflicting factor is that clients with higher profit would choose industry specialist auditors such that clients of specialist auditors have higher earnings. In this condition, a selection bias problem will arise. Thus, in light of this impact of endogeneity of a client's decision to hire an industry specialist auditor on clients' earnings conservatism, we perform a two-stage analysis in our latter robust test. Panel B also presents the same results, except for the difference in annual returns is not statistically significant.

[Insert Table 3 here]

Table 4 shows pooled cross-sectional regression coefficients and adjusted R^2 from estimation of equation (3) and equation (4). Equation (3) is the traditional Basu (1997) model,

which estimates earnings on returns with a dummy variable which equals 1 for bad news with negative returns and 0 for good news with positive returns. Results are presented separately for clients of specialist in Panel A and non-specialist auditors in Panel B. Observations are classified as clients of specialist auditors if they are audited by a audit firm which is considered a specialist in that year, or by the signing auditors (no matter lead auditor or concurring auditor) that are considered specialists in that year. Equation (4) includes a dummy variable *EXPERT* which equals 1 for industries representing the auditors' top two portfolio shares at individual-level (lead auditor or concurring auditor) or at firm-level, and 0 for the remaining industries where sales is used as the base in calculating portfolio share.

In Panel A for the group of clients of specialist auditors, the interactive slope coefficient, β_1 , is 0.146 and significant at the 0.01 level. This coefficient measures the difference in sensitivity of earnings over negative and positive returns. The positive coefficient indicates that earnings are more sensitive to negative returns than positive returns for clients of specialist auditors. When earnings is regressed on returns separately for positive and negative returns (untabulated), the adjusted R^2 is greater for negative returns than positive returns (11.63% vs. 3.2%). These results are consistent with earnings being timelier or concurrently sensitive in reporting publicly available “bad news” than “good news” (Basu 1997). In Panel B for the clients of nonspecialists, although the adjusted R^2 shows a better fit relative to the adjusted R^2 in Panel A, the coefficient of interactive variable is negative (not statistically significant). This result suggests that, for the clients of nonspecialist auditors, auditors don't play a significantly positive role in moderating the tendency to delay recognition of economic losses in earnings.

Panel C of Table 4 presents the results for the pooled sample. The coefficient of interest, β_3 , is positive (0.206) and statistically significant at the 0.01 level. Results indicate that the

difference in slope coefficients for bad news between clients of specialists and clients of non-specialists is statistically significant and the slope coefficient is higher for clients of specialist auditors. Furthermore, β_1 , which measures the incremental sensitivity of earnings to contemporaneous good news for clients of specialist auditors, is -0.220 and significant at the 0.01 level. This indicates that earnings of clients of specialists are less timely in incorporating economic gains than earnings of clients of non-specialists. Overall, Table 4 is consistent with our predictions that clients of specialist auditors show more conservatism reporting relative to clients of non-specialist auditors, no matter the industry specialist auditors is measured at individual-level or firm-level.

[Insert Table 4 here]

Conservatism and Expertise: Firm level or Individual level

We further explore the relative efficiency of the signing auditors expertise and firm-level auditor experts in enhancing accounting conservatism. Table 5 presents the results of estimating equation (5). Recall that equation (5) is extended from the joint national-city framework in Ferguson et al. (2003) and Francis et al. (2005, 2006). Hence, following prior studies, we report three models for comparative purposes. In model (1), the expertise test variable is code 1 if the auditor is an industry specialist at firm-level and 0 otherwise. In model (2), the expertise test variable is code 1 if the auditor is an industry specialist at individual-level and 0 otherwise (i.e., the expertise test variable is code 1 if the lead or the concurring auditor is an industry specialist and 0 otherwise.). Model (3) presents the results of equation (5) that three indicator expertise variables are included. All three models in Table 5 are significant at the 0.01 level and the adjusted R^2 's range from 15.75% to 17.83%.

First, in model (1) of Table 5, we examine whether specialist auditors at firm-level is associated with accounting conservatism. In contrast to our prediction, the coefficient of test variable interested, $EXPERT_F \times R \times DR$, is positive but not statistically significant. Second, in model (2), we analyze whether any one of the signing auditors being an industry specialist have the ability to enhance the asymmetry timeliness in clients' earnings. The coefficient on the test variable interested, $EXPERT_individual \times R \times DR$, is positive and statistically significant at the 0.01 level, suggesting that industry expertise, no matter from the lead auditor or from the concurring auditor, is positively associated with accounting conservatism. Comparing the coefficient of $EXPERT_Individual \times R \times DR$ in model (2) with $EXPERT_F \times R \times DR$ in model (1), we find a greater and more significant effect of individual-level auditor expertise on earnings conservatism (0.208 vs. 0.139). Next, in model (3), there is a positive association between earnings conservatism and interactive terms from two of the auditor variables: auditors that are jointly specialists at individual level and firm-level (0.213), and auditors that are specialists at individual-level alone but not specialists at firm-level (0.208). F-test indicates that there is no difference in the coefficients for these two interactive test variables ($p=0.8988$), suggesting that the whole audit firm's experts do not add anything over and above the effect of the signing auditors' expertise on enhancing the asymmetric timeliness of economic losses of earnings. Further, the coefficient on auditors that are expertise at firm-level alone but not expertise at individual level is negative (insignificant), a result indicating that only audit firm's expertise is insignificantly different from non-leaders in enforcing the timely recognition of economic losses in earnings.

These findings in Table 5 indicate that, contrary to the assumption underlying the extant studies on auditor expertise, industry expertise is not homogeneous across individual auditors

within the same audit firm. In addition, the associations between auditor industry expertise and the speed with which publicly available bad news about future cash flows is recognized in earnings are not driven by the whole audit firm but the signing auditors.

From the evidences in Table 5, we also have a hierarchy of earnings conservatism with respect to the auditor groupings as Francis et al. (2005, 2006) have done: earnings quality is highest (the most conservatism) when any one of the signing auditors is an industry expertise, either alone or in conjunction with the audit firm is an industry expertise. However, the effectiveness of enforcing the asymmetric timeliness of earnings with auditors those are industry specialists at firm-level alone is indistinguishable from that of firms audited by non-leaders (t -statistics=0.04).

[Insert Table 5 here]

Conservatism and Expertise: at the Individual Level

Till now, the lead auditor and the concurring auditor within the same signing auditor group are regarded as having the same ability in enforcing the asymmetry timeliness of earnings in the analysis above. However, as Table 2 shows, the industry expertise may differ between the lead and concurring auditor. In this section, we further investigate the relative efficiency of the lead auditor to the concurring auditor at the individual level. Table 6 presents the results of estimation equation (6). Similarly, we report three models for comparative benchmarking purposes as in Francis et al. (2005, 2006) and Ferguson et al. (2003). Model (1) codes expertise test variable (i.e. *EXPERT_L*) equal to one if the lead auditor is an industry specialist, and zero otherwise. In model (2), we code expertise test variable (i.e. *EXPERT_C*) equal to one if the concurring auditor is an industry expert, and zero otherwise. Our main concern is in model (3)

which reveals the results of estimating equation (6) based on the specification of three auditor indicator variables.

Model (1) and model (2) of Table 6 analyzes whether the lead auditors or concurring auditor is associated with accounting conservatism. The results reveal that, as predicted, the coefficients on the interested test variable, *EXPERT_L×R×DR* and *EXPERT_C×R×DR*, are both positive (0.189 vs. 0.175) and statistically significant at the 0.01 level, indicating the impact of the signing lead auditor expertise and the concurring auditor expertise in accounting conservatism is both positive statistically and economically significant. Moreover, the interested coefficient in model (1) is greater and more pronounced than that in model (2).

In model (3), while results reveal that the coefficient for the three specialist auditor groupings on enforcing conservatism is all significantly positive, the coefficient for the concurring auditor expertise alone is smaller than the lead auditor expertise alone (0.208 vs. 0.240) and the t-statistics is also lower (2.56 vs. 2.94). The finding suggests that even in the same signing group at the individual-level, the effectiveness of auditor expertise on accounting conservatism differs between the lead auditor and concurring auditor. In addition, since we are concerned for the influence of the fellow auditors outside the signing auditors group within the same firm, we perform an additional regression by including the audit firm portfolio shares as a control variable. The result (not tabulated) indicates that the positive association holds for both individual auditors and that the relative coefficient for the concurring auditor expertise alone is still smaller than the lead auditor expertise alone (0.220 vs.0.243), qualitatively the same as in Table 6.

In sum, the evidences from Table 6 coincide with the findings in Table 5 that industry expertise may not be homogeneous across individual auditors within the same audit firm and

even within the same signing auditors group. Specifically, we find the following hierarchy of earnings conservatism different from those in Francis et al. (2005, 2006) and Ferguson et al. (2003) about earnings quality or audit quality: [leaders at *individual-auditor* level expertise] > [leaders at *audit-firm* level expertise] = [non-leaders]; and [lead auditors] > [concurring auditors] in the dimension of *individual-auditor* level.

[Insert Table 6 here]

Additional Tests

A lot of prior studies have examined the issue in the determinants of auditor choices (Landsman et al. 2005; Knechel et al. 2005; Pittman and Fortin 2004; Dunn and Mayhew 2004; Anderson et al. 1993), for example: competition (Kwon 1996), clients' risks (Datar et al. 1991; Copley and Douthett 2002), and cost of capital (Pittman and Fortin 2004). To address the impact of endogeneity of a client's decision to hire an industry expertise on the clients' accounting conservatism, we use probit regression to estimate equation (7) for explaining the choice of an industry expertise for our Taiwan data. We then obtain the fitted values from the probit regression and calculate the inverse Mills ratio (Heckman 1997). The inverse Mills ratio (IMS) is then used as an additional explanatory variable in model (4) to correct for potential self-selection bias.

In the first stage, we base on the model by Godfrey and Hamilton (2005) to estimate the following equation for firms' selection of auditor type:

$$\begin{aligned}
 EXPERT_{it} = & \gamma_0 + \gamma_1 ROA_{it} + \gamma_2 LOSS_{it} + \gamma_3 LEV_{it} + \gamma_4 CYCLE_{it} + \gamma_4 OI_INT_{it} \\
 & + \gamma_5 SIZE_{it} + \gamma_5 CYCLE_{it} + \delta YEAR + \phi INDUSTRY + v_{it}
 \end{aligned}
 \tag{7}$$

where *EXPERT* is coded one if the audit firm in model (1) or the signing auditor in model (2) is classified as industry specialists, 0 otherwise. *LOSS* is coded one if earnings before extraordinary

items was less than \$0, zero otherwise. *CYCLE* is the length of operating cycle in months. *ISSUE* is new equity issue, 1 if change in equity over 10 percent and zero otherwise. We control for client size by including the natural log of total assets as an explanatory variable.⁸ We include *LEV* (leverage, long-term liabilities divided by total assets), *OI_INT* (the ranked number of operating income before depreciation, divided by interest) and *ROA* to control for client's business risk and profitability.

In Table 7, Panel A reports the results of estimating equation (7) for the probit regression relating the choices of specialist auditor, measured at the *audit-firm* level and *individual-auditor* level in model (1) and model (2) respectively. *CYCLE*, *SIZE*, and *OI_INT* are both significant at the 0.01 level in model (1) and model (2). *ROA*, *LOSS* and *LEV* are also significant in model (1). Panel B presents the regression results for equation (4) expanded to include the inverse Mills Ratio (*IMR*) as an additional explanatory variable to control for self-selection bias. In this expanded model, the coefficient on $\overline{EXPERT_Individual} \times R \times DR$ is still significant with a positive sign (0.152), indicating the lead auditor or the concurring auditor expertise is associated with accounting conservatism even after controlling for potential self-selection bias.

[Insert Table 7 here]

In addition, to control for industry-specific factors that may be correlated with the levels of asymmetric timeliness of earnings exhibited by clients of specialist auditors, we re-estimate equation (4) to (6) by including industry-dummy variables. If *EXPERT* captures just industry-specific factors, then the inclusive of industry dummy variables and *EXPERT* variables in the same model would help us to tease out this relationship between conservatism and auditors' expertise. On the contrary, if *EXPERT* also captures auditor's expertise, then the associations we

⁸ Using log of sales as the size measure yields similar results.

find in the previous analysis would still holds. The results (not tabulated) are similar to that in Tables 4-6 though the magnitude of the coefficient on the interested interactive terms is lower. We also re-run all the equations in (4)-(6) by dropping each industry one at a time, and the untabulated results show that the findings are not driven by any one specific industry. Further, to control for possible individual Big 4 firm effects and individual auditor effects, the models in Tables 4-6 are re-estimated by dropping each Big 4 accounting firm and each top-five signing auditor one at a time. Again, our untabulated results indicate that the empirical results are qualitatively the same as in Tables 4-6 with respect to coefficients and t-statistics. We conclude from these analyses that the results are robust across the spectrum of industries in the sample and are not driven by any one of audit firms or the signing auditors.

CONCLUSIONS

This paper provides evidence on the association between accounting conservatism and auditors' industry expertise, measured at *individual-auditor* leadership and *firm-level* leadership respectively. It is well documented that industry expertise at the audit-firm level is related to higher earnings quality, higher audit quality or higher audit fee (Krishnan 2003, 2005; Craswell et al. 1995; Ferguson et al. 2003; Deis and Girous 1992; Balsam et al. 2003). However, those studies explicitly or implicitly assume that industry expertise is homogeneous across individual auditors within the same audit firm or within the same city for a given firm. In this study, we investigate whether the individual auditor's specialist is associated with higher earnings conservatism, and whether the association varies among auditors within the same audit firm or within the same signing auditors group. Since an audit report of a listed company in Taiwan has to be certified and signed by two audit partners (lead auditor and concurring auditor) in addition

to a signature representative of an audit firm, Taiwan data provides us with a unique setting to address these issues.

Overall, our findings are consistent with the notion that auditor's industry expertise plays an important role in enhancing the asymmetric timeliness of earnings; specifically, the results are driven by the individual auditors' industry expertise. First, we find that the asymmetric timeliness of earnings for bad news is greater for clients audited by specialist signing auditors (regardless of lead or concurring auditors) relative to clients audited by non-specialist signing auditors. However, we don't find that audit firm's expertise is significantly different from non-leaders in enforcing the timely recognition of economic losses in earnings, a result contradictory to the findings in prior studies. These findings lend support to the notion that the effectiveness of auditor expertise on earnings conservatism varies among auditors within the same audit firm. In other words, the ability of auditors' industry expertise to persuade their clients to recognize losses in a timely manner is primarily attributable to the signing auditor specialists rather than auditor specialists at the firm level.

Second, when we further investigate the relative efficiency on earnings conservatism between the lead auditor and the concurring auditor, we find that the association is more pronounced for the lead auditor's expertise than for the concurring auditor's expertise. This suggests that even in the same signing group within the same audit firm, the effectiveness of auditor expertise on accounting conservatism differs between the lead auditor and the concurring auditor.

This study is important in helping understand the role of auditing in the production of credible accounting information, whether audits by industry specialists enhance the asymmetric timeliness of earnings, and whether auditor industry expertise is a firm-wide or individual-

auditor phenomenon. Further this study may help the regulator to evaluate the effectiveness of individual auditors in fulfilling accounting and auditing requirements and put more efforts on investigating the accounting reports of companies not audited by individual specialist auditors.

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Table 1
Sample Selection and Distribution of Observations across Sub-periods

Panel A: Sample selection		Number of Observations
Number of firm-years in the TEJ from 1987 through 2004		14,364
Less: Financial services and insurance Firms		149
Less: Missing financial data		8,289
Less: Top or bottom of expertise variables at 1% each year		188
Number of company-years in the final sample		<u>5,741</u>

Panel B: Sample distribution across sample sub-periods							
Year	1987~1989	1990~1992	1993~1995	1996~1998	1999~2001	2002~2004	Total
Observations	222	361	554	873	1,464	2,267	5,741
%	3.87%	6.30%	9.65%	15.21%	25.51%	39.46%	100%

Table 2
Distribution of Observations and Top two ranked Specialist Auditors across Industries (n=5,741)

Industry Name (TEJ Industry code)	n	Year-Firms (n)						Firm Level (%)		Individual Level (%)			
		1 st - Audit Firm	2 nd - Audit Firm	1 st - Lead Auditor	2 nd - Lead Auditor	1 st - Concurring Auditor	2 nd - Concurring Auditor	1 st - Audit Firm	2 nd - Audit Firm	1 st - Lead Auditor	2 nd - Lead Auditor	1 st - Concurring Auditor	2 nd - Concurring Auditor
		Cement (1)	124	0	8	34	31	18	54	-	1.86	17.04	10.19
Foods (2)	250	1	22	40	76	62	68	16.97	14.89	24.05	13.20	62.65	20.56
Plastics (3)	270	18	19	98	50	68	46	30.91	35.91	14.57	4.55	64.54	25.78
Textiles (4)	648	19	26	134	116	136	122	75.88	44.57	16.40	10.49	50.72	22.41
Electric (5)	280	29	14	71	68	84	64	58.85	6.80	45.81	15.90	54.23	21.27
Wire (6)	179	48	1	91	24	92	26	17.85	4.99	33.50	11.71	55.75	23.56
Chemical (7)	359	46	12	90	52	72	95	10.72	5.83	55.62	12.14	69.71	22.94
Glass (8)	76	2	1	4	0	11	8	2.57	0.69	11.11	-	58.39	25.77
Paper & Pulp (9)	114	8	2	34	24	36	29	12.84	2.03	31.56	13.56	58.31	19.44
Steel & Iron (10)	252	47	6	86	65	93	55	51.55	18.46	46.16	17.83	54.01	17.17
Rubber (11)	126	0	14	39	5	31	29	-	24.17	36.22	15.42	68.12	14.62
Motor (12)	40	13	7	26	11	25	6	16.83	28.74	49.64	23.67	47.07	10.83
Electronics (13)	1,812	29	45	328	240	338	237	15.07	45.99	42.97	16.11	51.06	20.25
Constructions (14)	346	36	7	80	75	81	55	8.57	20.26	29.20	12.24	66.40	23.18
Transportations (15)	196	31	14	61	10	61	8	37.87	1117	30.44	08.63	56.25	17.88
Tourism (16)	97	1	0	4	5	2	13	1.86	-	20.36	16.75	1.00	29.47
Department Store (18)	116	1	1	34	21	31	22	1.96	11.79	49.92	26.87	52.60	23.07
Composite (19)	95	8	4	11	18	13	16	21.60	3.91	79.19	16.07	89.89	19.66
Other (20)	287	1	0	31	33	44	49	3.23	-	33.88	13.94	57.41	21.07
Biotechnology (21)	30	0	2	3	2	1	3	-	1.900	47.40	17.19	1.00	19.19
Telcom&Cummuciation(22)	14	0	0	0	2	0	2	-	-	-	33.15	-	25.76
Software(23)	30	1	0	0	4	1	0	1.000	-	-	11.33	27.06	-
Total number	5,741	339	205	1,301	930	1,299	1,008						
Total(mean portfolio share percentages across all industries)								38 %	30 %	40%	15%	56%	21%

Table 3
Descriptive Statistics: Clients of Specialist versus Nonspecialist Auditors for 1987~2004

Panel A: At the audit-firm level						
Variable	Clients of Specialist Auditors			Clients of Nonspecialist Auditors		
Number of Observations	544			5,197		
% of loss observations	13.60%			21.78%		
% of observations with negative return	46.51%			51.22%		
Variable	Mean			Median		
	Specialist	Nonspecialist	t-statistic	Specialist	Nonspecialist	Z-statistic
Earnings	1.67	1.09	5.70 ^a	1.21	0.89	5.91 ^a
Annual returns	10.83%	5.41%	2.17 ^b	-2.89%	-6.69%	3.40 ^b
Firm Size(\$M)	25,946	10,437	5.98 ^b	7,549 ^c	3,804	11.02 ^a
Panel B: At the Individual level						
Variable	Clients of Specialist Auditors			Clients of Nonspecialist Auditors		
Number of Observations	3,024			2,717		
% of loss observations	17.89%			24.48%		
% of observations with negative return	55.52%			57.12%		
Variable	Mean			Median		
	Specialist	Nonspecialist	t-statistic	Specialist	Nonspecialist	Z-statistic
Earnings	1.32	0.95	6.23 ^a	1.03	0.80	4.56 ^a
Annual returns	0.06	0.06	-0.23	-0.05	-0.08	-1.86 ^b
Firm Size(\$M)	18,097	5,015	12.95 ^a	6,235	2,557	-22.11 ^a

Notes:

Industry specialists are identified as “the largest and second supplier in each industry”. In Panel A, for each year, for each audit firm, top two portfolio shares are coded as industries where the audit firm is considered a specialist in that year. In Panel B, individual auditors (lead auditor or concurring auditor) are considered a specialist if top two portfolio shares are coded as industries.

Earnings is net income per share, deflated by price per share at the beginning of the fiscal year. Annual return is calculated over a 12 month period ending four months after the fiscal year-end. Firm size is the market value of outstanding shares at fiscal year-end (in-millions).

Tests are tow-tailed. t-statistics are form t-tests of the differences in the means and Z-statistics are form Wilcoxon two-sample tests.

^{a, b, c} Represent statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 4
Results from Regression of Earnings on Returns and Expertise

$$X_{it} / P_{it-1} = \beta_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} \times DR_{it} + \varepsilon_{it} \quad (3)$$

Panel A: Clients of Specialists

Variable	Coefficient	t-statistic
Intercept	0.086	11.64 ^a
<i>R</i>	0.095	9.02 ^a
<i>DR</i>	0.023	1.98 ^b
<i>R</i> × <i>DR</i>	0.146	5.14 ^a
Adj. <i>R</i> ²		0.093

Panel B: Clients of Non-specialists

Variable	Coefficient	t-statistic
Intercept	-0.062	-5.30 ^a
<i>R</i>	0.315	25.08 ^a
<i>DR</i>	0.163	8.53 ^a
<i>R</i> × <i>DR</i>	-0.060	-1.36
Adj. <i>R</i> ²		0.209

$$X_{it} / P_{it-1} = \alpha_0 + \alpha_1 R_{it} + \alpha_2 DR_{it} + \alpha_3 R_{it} \times DR_{it} + \beta_0 EXPERT_{it} + \beta_1 EXPERT_{it} \times R_{it} + \beta_2 EXPERT_{it} \times DR_{it} + \beta_3 EXPERT_{it} \times R_{it} \times DR_{it} + \varepsilon_{it} \quad (4)$$

Panel C: All clients

Variable	Coefficient	t-statistic
Intercept	-0.062	-6.40 ^a
<i>R</i>	0.315	30.30 ^a
<i>DR</i>	0.163	10.31 ^a
<i>R</i> × <i>DR</i>	-0.060	-1.65 ^c
<i>EXPERT</i>	0.148	10.85 ^a
<i>EXPERT</i> × <i>R</i>	-0.220	-12.81 ^a
<i>EXPERT</i> × <i>DR</i>	-0.140	-6.41 ^a
<i>EXPERT</i> × <i>R</i> × <i>DR</i>	0.206	3.97 ^a
Adj. <i>R</i> ²		0.177

Notes:

The sample consists of firm-year observations for the years 1987 through 2004. Observations falling in the top or bottom 1% of price-deflated earnings or returns in each year are excluded. Observations are classified as clients of specialist auditors if they are audited by an audit firm which is considered a specialist in that year, or by the signing auditors (no matter lead auditor or concurring auditor) that are considered specialists in that year.

X_{it} is net income per share of firm i in fiscal year t , and P_{it-1} is price per share at the beginning of the year. R_{it} represents annual return calculated over a 12-month period ending four months after the fiscal year end. And DR_{it} is a dummy variable that equals 1 if $R_{it} < 0$ and 0 otherwise. $EXPERT$ is coded 1 if the audit firm or the signing auditors (no matter lead auditor or concurring auditor) is classified as industry specialists, 0 otherwise. Industry specialists are identified as “the largest and second supplier in each industry”.

^{a, b, c} Represent statistical significance at the 0.1, 0.05, and 0.01 levels, respectively. (two-tailed)

Table 5
Results from Regression of Earnings on Returns and Expertise for Audit-firm Level, Individual Level and Combined Level

Variable	Model (1) industry leadership measured at firm level		Model (2) industry leadership measured at individual level		Model (3) combined individual and firm level	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.010	-1.39	-0.061	-6.39 ^a	-0.062	-6.40 ^a
<i>R</i>	0.244	28.02 ^a	0.315	30.31 ^a	0.315	30.32 ^a
<i>DR</i>	0.115	9.95 ^a	0.163	10.30 ^a	0.163	10.32 ^a
<i>R</i> × <i>DR</i>	0.006	0.21	-0.060	-1.67*	-0.060	-1.65*
<i>EXPERT_F</i>	0.149	6.30 ^a				
<i>EXPERT_F</i> × <i>R</i>	-0.143	-4.54 ^a				
<i>EXPERT_F</i> × <i>DR</i>	-0.139	-3.72 ^a				
<i>EXPERT_F</i> × <i>R</i> × <i>DR</i>	0.139	1.41				
<i>EXPERT_Individual</i>			0.148	10.85 ^a		
<i>EXPERT_Individual</i> × <i>R</i>			-0.220	-12.81 ^a		
<i>EXPERT_Individual</i> × <i>DR</i>			-0.140	-6.40 ^a		
<i>EXPERT_individual</i> × <i>R</i> × <i>DR</i>			0.208	4.01 ^a		
<i>EXPERT_F_alone</i>					0.066	0.44
<i>EXPERT_F_alone</i> × <i>R</i>					-0.090	-0.25
<i>EXPERT_F_alone</i> × <i>DR</i>					-0.053	-0.04
<i>EXPERT_F_alone</i> × <i>R</i> × <i>DR</i>					-0.086	0.04
<i>EXPERT_Individual_alone</i>					0.136	9.46 ^a
<i>EXPERT_Individual_alone</i> × <i>R</i>					-0.223	-12.03 ^a
<i>EXPERT_Individual_alone</i> × <i>DR</i>					-0.130	-5.64 ^a
<i>EXPERT_Individual_alone</i> × <i>R</i> × <i>DR</i>					0.208	3.82 ^a
<i>EXPERT_Both</i>					0.204	8.34 ^a
<i>EXPERT_Both</i> × <i>R</i>					-0.217	-6.82 ^a
<i>EXPERT_Both</i> × <i>DR</i>					-0.191	-4.91
<i>EXPERT_Both</i> × <i>R</i> × <i>DR</i>					0.213	2.11 ^b
N		5,741		5,741		5,741
Adj. R ²		0.1575		0.1772		0.1783
F-value		154.33		177.55		84.03

Notes:

The sample consists of firm-year observations for the years 1987 through 2004. Observations falling in the top or bottom 1% of price-deflated earnings or returns in each year are excluded.

X_{it} is net income per share of firm i in fiscal year t , and P_{it-1} is price per share at the beginning of the year. R_{it} represents annual return calculated over a 12-month period ending four months after the fiscal year end. And DR_{it} is a dummy variable that equals 1 if $R_{it} < 0$ and 0 otherwise. *EXPERT_F* is coded 1 if the *audit firm* is classified as industry specialists, 0 otherwise. Industry specialists are identified as “the largest and second supplier in each industry”. *EXPERT_Individual* is coded 1 if the *signing auditor*

(*lead auditor or concurring auditor*) is classified as industry specialists, 0 otherwise. Industry specialists are identified as “lead auditors with the largest and second market share in each industry”. *EXPERT_F_alone* equals 1 if auditor is an industry specialist at audit-firm level, but not at individual auditor level. *EXPERT_Individual_alone* equals 1 if auditor is an industry specialist at individual auditor level (e.g., lead or concurring auditor is a specialist), but not at audit-firm level. *EXPERT_Both* equals 1 if auditor is an industry specialist at both individual auditor level and audit-firm level.

^a Significant at the 1% level; ^b Significant at the 5% level; ^c Significant at the 10% level

Table 6
Results from Regression of Earnings on Returns and Expertise at Individual Level:
For Lead auditor, Concurring auditor, and Combined

Variable	Model (1) lead auditor		Model (2) concurring auditor		Model (3) combined	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.040	-4.62 ^a	-0.045	-5.16 ^a	-0.061	-6.39 ^a
<i>R</i>	0.290	29.39 ^a	0.283	28.77 ^a	0.315	30.35 ^a
<i>DR</i>	0.143	10.19 ^a	0.142	10.06 ^a	0.163	10.31 ^a
<i>R</i> × <i>DR</i>	-0.040	-1.24	-0.038	-1.18	-0.060	-1.67 ^c
<i>EXPERT_L</i>	0.127	9.04 ^a				
<i>EXPERT_L</i> × <i>R</i>	-0.193	-10.59 ^a				
<i>EXPERT_L</i> × <i>DR</i>	-0.119	-5.32 ^a				
<i>EXPERT_L</i> × <i>R</i> × <i>DR</i>	0.189	3.48 ^a				
<i>EXPERT_C</i>			0.135	9.62 ^a		
<i>EXPERT_C</i> × <i>R</i>			-0.170	-9.21 ^a		
<i>EXPERT_C</i> × <i>DR</i>			-0.115	-5.14 ^a		
<i>EXPERT_C</i> × <i>R</i> × <i>DR</i>			0.175	3.23 ^a		
<i>EXPERT_L_alone</i>					0.138	6.01 ^a
<i>EXPERT_L_alone</i> × <i>R</i>					-0.285	-9.16 ^a
<i>EXPERT_L_alone</i> × <i>DR</i>					-0.156	-4.43 ^a
<i>EXPERT_L_alone</i> × <i>R</i> × <i>DR</i>					0.240	2.94 ^a
<i>EXPERT_C_alone</i>					0.149	6.53 ^a
<i>EXPERT_C_alone</i> × <i>R</i>					-0.230	-7.09 ^a
<i>EXPERT_C_alone</i> × <i>DR</i>					-0.143	-4.15 ^a
<i>EXPERT_C_alone</i> × <i>R</i> × <i>DR</i>					0.208	2.56 ^b
<i>EXPERT_Both</i>					0.155	9.59 ^a
<i>EXPERT_Both</i> × <i>R</i>					-0.191	-9.23 ^a
<i>EXPERT_Both</i> × <i>DR</i>					-0.133	-5.09 ^a
<i>EXPERT_Both</i> × <i>R</i> × <i>DR</i>					0.196	3.02 ^a
N		5,741		5,741		5,741
Adj. R ²		0.1692		0.1678		0.1793
F-value		168.01		166.34		84.59

Notes:

The sample consists of firm-year observations for the years 1987 through 2004. Observations falling in the top or bottom 1% of price-deflated earnings or returns in each year are excluded.

X_{it} is net income per share of firm i in fiscal year t , and P_{it-1} is price per share at the beginning of the year. R_{it} represents annual return calculated over a 12-month period ending four months after the fiscal year end. And DR_{it} is a dummy variable that equals 1 if $R_{it} < 0$ and 0 otherwise. *EXPERT_L* is coded 1 if the *lead auditor* is classified as

industry specialists, 0 otherwise. Industry specialists are identified as “the largest and second supplier in each industry”. *EXPERT_L* is coded 1 if the *concurring auditor* is classified as industry specialists, 0 otherwise. Industry specialists are identified as “lead auditors with the largest and second market share in each industry”. *EXPERT_L_alone* equals 1 if only the lead signing auditor is an industry specialist. *EXPERT_C_alone* equals 1 if only the concurring signing auditor is an industry specialist. *EXPERT_Both* equals 1 if both the lead and concurring auditor are considered industry specialists.

^a Significant at the 1% level; ^b Significant at the 5% level; ^c Significant at the 10% level

Table 7
Results from Estimation Two-Stage Estimation Models for Auditors' Expertise and Conservatism

Panel A: Auditor choice model

$$\begin{aligned}
 EXPERT_{it} = & \gamma_0 + \gamma_1 ROA_{it} + \gamma_2 LOSS_{it} + \gamma_3 LEV_{it} + \gamma_4 CYCLE_{it} + \gamma_4 OI_INT_{it} \\
 & + \gamma_5 SIZE_{it} + \gamma_5 CYCLE_{it} + \delta YEAR + \phi INDUSTRY + v_{it}
 \end{aligned}
 \tag{7}$$

	γ_0	γ_1	γ_2	γ_3	γ_4	γ_5	γ_6	Year	Industry	N	Log Likelihood
Model (1)	5.353 ^a	0.239	-0.037	0.204	0.017 ^a	-0.343 ^a	-0.262 ^a	Not reported		5,597	-1510
Model (2)	9.720 ^a	1.428 ^a	0.160 ^b	0.379 ^c	0.005 ^a	-0.370 ^a	-0.646 ^a	Not reported		5,597	-3103

Panel B: Control for selection bias

$$\begin{aligned}
 X_{it} / P_{it-1} = & \alpha_0 + \alpha_1 R_{it} + \alpha_2 DR_{it} + \alpha_3 R_{it} \times DR_{it} \\
 & + \beta_0 EXPERT_{it} + \beta_1 EXPERT_{it} \times R_{it} + \beta_2 EXPERT_{it} \times DR_{it} \\
 & + \beta_3 EXPERT_{it} \times R_{it} \times DR_{it} + \beta_4 IMR_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{4}$$

	α_0	α_1	α_2	α_3	β_0	β_1	β_2	β_3	β_4	Adj. R2
Model (1)	0.062 ^a	0.250 ^a	0.114 ^a	-0.016	0.062 ^b	-0.145 ^a	-0.136 ^a	0.152	0.036 ^a	17.17%
Model (2)	-0.019	0.325 ^a	0.165 ^a	-0.078 ^b	0.048 ^b	-0.143 ^a	-0.143 ^a	0.204 ^b	0.047 ^a	18.69%

Note:

In mode (1), the industry expertise is measured at audit-firm level; in model (2) is the individual-auditor level.

The sample consists of firm-year observations for the years 1987 through 2004. Following Basu (1997), observations falling in the top or bottom 1% of price-deflated earnings or returns in each year are excluded. In model (1), *EXPERT* is coded 1 if the audit firm is classified as industry specialists, 0 otherwise. Industry specialists are identified as “the largest and second supplier in each industry”. In model (2), *EXPERT* is coded 1 if the signing auditor (lead auditor or concurring auditor) is classified as industry specialists, 0 otherwise. Industry specialists are identified as “the largest and second supplier in each industry”.

X_{it} is net income per share of firm i in fiscal year t , and P_{it-1} is price per share at the beginning of the year. R_{it} represents annual return calculated over a 12-month period ending four months after the fiscal year end. And DR_{it} is a dummy variable that equals 1 if $R_{it} < 0$ and 0 otherwise. *SIZE* is log of assets. *LEV* is ratio of long-term debt to total assets. *CYCLE* is length of operating in months. *OI_INT* is the ranked number of operating income before depreciation, divided by interest. *ROA* is net income to average assets.

^{a, b, c} Represent statistical significance at the 0.01, 0.05, and 0.1 levels, respectively