

Economic bonding, auditor safeguard and audit quality: Peer review evidence from individual auditors

Erkki K. Laitinen

Professor Emeritus of Accounting and Business Finance§

Teija Laitinen

Professor of Accounting and Business Finance

Unit of Accounting and Business Finance

University of Vaasa, Vaasa Finland

ABSTRACT

In this paper, we examine whether the economic bond between an individual engagement partner and client threatens auditor independence and thus audit quality. We also investigate if auditor's good economic position acts as a safeguard against this economic bond. Using a sample of peer reviewed individual audit engagements of 264 Finnish auditors we examine whether the client's economic size is likely to affect audit quality as measured by the degree of compliance with audit standards (peer review). Furthermore, using taxable earned (salaries) and unearned (capital gains) income information of auditors we investigate if high income level of an auditor diminishes the risk of financial self-interest threat. Our results provide evidence that Finnish auditors show a very high independence although big client's economic size (turnover) weakly affects audit quality. There is weak evidence that auditors are likely to show higher quality for larger clients. Our results also suggest that this financial self-interest threat can be safeguarded by auditor's high unearned income level diluting the economic bond with the client. Unearned income acts here as a proxy for economic wealth.

Keywords: client size, audit quality, auditor independence, peer-review, self-interest threat, auditor income, independence safeguard

JEL classification: M Business Administration and Business Economics; Marketing; Accounting; Personnel Economics; M4 Accounting and Auditing; M42 Auditing

INTRODUCTION

It is important that an auditor provides all customers with equal quality. In this paper, we examine whether the economic bond between an individual engagement partner and the client threatens auditor independence and thus audit quality. Furthermore, we investigate if auditor's high income acts as a safeguard diluting this economic bond. Since the risk of audit quality impairment is higher when auditor's independence is impaired (DeAngelo 1981), we investigate if client's economic size has an influence on audit quality (as measured by peer review). When literature presents several safeguards (financial independence) to inhibit the self-interest threats (dependence on total fees from an assurance client, concern about the possibility of losing the engagement, or contingent fees) relating to assurance engagement affecting audit quality, we examine whether the audit quality can be improved by using one of these safeguards (earned and unearned income as a measure of economic independence of an auditor).

In various contexts, it has been required that auditors should identify and evaluate threats to their independence and reduce them to an acceptable level. Economic rents associated with audit fees create an economic bond between auditor and client (DeAngelo 1981; Magee and

Tseng 1990). It is possible that in order to retain these revenues, auditors will compromise their independence. The seminal paper of DeAngelo (1981) suggests that large audit firms supply higher audit quality since large auditors are more economically independent from a single client and have more to lose by compromising audit quality. Empirical research after DeAngelo (1981) has generated mixed evidence. Some studies have found auditor independence impairment to be associated with economic bond (e.g. Frankel et al. 2002; Knechel et al. 2013). Some studies found no evidence for this association (DeFond et al. 2002; Lennox 1999; Hardies et al. 2012).

DeAngelo (1981) examined the influence of economic bond at the audit firm level. However, it has been argued that it would not be the appropriate level to investigate auditor independence impairment (Tepalagul and Lin 2015). Because engagement partner and local offices will suffer relatively more than large audit firms when losing a client (DeFond and Francis 2005; Reynolds and Francis 2001), studies have started to investigate the relationship between economic bonding and auditor independence at the office-level (e.g., Craswell et al. 2002; Li 2009; Reynolds and Francis 2001). These studies did not find any support for the claim that economic bonding in terms of higher fees will lead to auditor independence impairment.

DeFond et al. (2005) suggested studying economic bond between individual engagement partner and the client. This relationship has been considered to be as important as the one between the audit firm and the client (Miller 1992; Wallman 1996). It has also been suggested that audit process is affected by the task-performing auditor (Church et al. 2008). Evidence shows that audit engagement partners make the most important decisions in every audit engagement (Chin and Chi 2009; Reichelt and Wang 2010). Furthermore, a specific client is considered more likely to be economically important for an audit partner than for the entire firm or local office (Hardies et al. 2012).

Despite of these observations it is still unknown how individual partners trade off individual losses or benefits against the loss of quasi-rents for partnership as a whole (Simunic 2003). Anyhow, it is obvious that engagement partners recognize that developing or maintaining clients will lead to career advancement and that losing a client will damage their career (Miller 1992). Hence, economic bonding may increase the individual engagement partner's willingness to compromise audit quality.

Thus, individual audit engagement partner level can be a seminal starting point to study economic bonding. However, prior research at this level has been very limited due to the lack of relevant data (Hardies et al. 2012; Knechel et al. 2013). Hardies et al. (2012) reported only two studies that had investigated the relationship between auditor independence impairment and fee revenues at the audit partner level. Chen et al. (2010) reported that client importance, measured at the individual auditor level, but not at the audit office or firm level, impairs audit quality in China in terms of a lower probability of modified audit opinion issuance. Chi et al. (2010) found no evidence that individual partners compromise independence for economically important clients.

The third study at this level is Hardies et al. (2012) that used Belgian data to investigate the relationship between auditor independence impairment and economic bond between individual engagement partner and his or her client. Their results provided no evidence that client's economic importance negatively affects auditor independence. In addition, Knechel et al. (2013) used Swedish data to show that for distressed firms the client's economic importance increased and the auditor's wealth (as a safeguard) decreased the auditor's

propensity to give a modified (going concern) audit opinion. However, for bankrupt and equity-lost firms the effect of the auditor's wealth was found insignificant.

Hardies et al. (2012) and Knechel et al. (2013) selected their countries of source data for several reasons (Belgium and Sweden, respectively). Some of them are valid also in this study where we are using Finnish data. Hardies et al. (2012) argue that ideal setting to test auditor impairment is the one with low reputation risk (i.e. private firms with few shareholders) and low litigation risk. In this kind of environment auditor incentives favor avoiding the loss of the client (Knechel and Vanstraelen 2007). The environments for auditors in these respects are largely similar in Belgium, Sweden, and Finland. Thus, Finnish data provides us with a good environment to examine the influence of economic bonding on auditor independence.

Finnish data make it also possible to examine auditor's safeguard against economic bonding nearly in the same way as in Sweden (Knechel et al. 2013). In Finland all tax information of taxable income is public making it possible to assess the economic importance of a client in relation to auditor's yearly income. For this purpose, we have collected both earned (annual salaries) and unearned income (capital gains) figures for all Finnish auditors in our sample. Thus, we can on the one hand measure the importance of a client to an auditor as the client's size; on the other hand measure the absolute income level of an auditor as a safeguard against economic bonding (cf. Knechel et al. 2013).

Instead of measuring audit quality with timely modified audit opinions or discretionary accruals as in previous studies we are using the Peer Review Quality results of a national office, Finnish Central Chamber of Commerce. We think that Engagements Reviews are even more direct test of auditor independence than modified audit opinions or earnings management. Instead of client's total assets (Chen et al. 2010, Chi et al. 2010) or audit fees (Hardies et al. 2012) we are using client's (private firm) turnover as a proxy for client's economic size and importance for auditor. The turnover captures and reflects also other economic values than audit fee, e.g. the economic significance of a client in society and thus marketing and reputation value for an auditor.

This paper makes several contributions to the existing audit research. First, we are contributing to the scarce literature that examines audit quality at individual engagement level (e.g., Chen et al. 2010; Francis and Yu 2009; Hardies et al. 2012; Knechel et al. 2013). Second, we are extending the study by Hardies et al. (2012) using a measure of client's economic importance including both the client's sales (size) and the auditor's taxable income level into the analysis. In this perspective, our study has similarities with Knechel et al. (2013). Third, we use an audit quality measure that has not earlier been examined in this context; peer review quality results (compliance with audit standards). Hardies et al. (2012) and Knechel et al. (2013) measure audit quality as a propensity to give a modified opinions to clients that represent a material portion of their client portfolio. Fourth, we also test for Finnish data if auditor's economic position can act as safeguard against potentially impaired quality for randomly selected firms. Knechel et al. (2013) tested this kind of hypothesis for Swedish data only in special circumstances (distressed, equity-lost, and bankrupt firms).

We will show that both the audit quality and the independence of Finnish auditors are at a very high level although client's economic size (in terms of turnover) weakly affects audit quality. There is found weak evidence that auditors are likely to show higher quality for larger clients. Thus, Finnish auditors are not willing to compromise audit quality due to economic bonding but merely to use a strategy to build a reputation by providing higher than expected quality for important clients. Our results also suggest that this financial self-interest threat can be

safeguarded by auditor's high unearned income (capital gains) level diluting the economic bond with the client. Unearned income acts in this context as a proxy for economic wealth.

The remainder of this paper is organized as follows. In the next section, we shortly discuss the nature of peer review information which plays the central role in our study. In that section, we describe peer review systems in Europe, and the Finnish audit environment to enlighten the special context for the study. In the third section, we discuss our research questions and hypotheses. In section four we present our research methodology and data. The fifth section reports our overall results. Finally, the study ends with section six, including a general discussion of our results, the limitations of our research, and suggestions for future research.

PEER REVIEW QUALITY INFORMATION

Europe

In Europe, the European Parliament and the Council gave 2006 directive (Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts, amending Council Directives 78/660/EEC and 83/349/EEC and repealing Council Directive 84/253/EEC) that stipulates Quality assurance systems in Member states. According to directive, each Member State shall ensure that all statutory auditors and audit firms are subject to a system of quality assurance which is organized in such a manner that it is independent of the reviewed statutory auditors and audit firms and the persons who carry out quality assurance reviews shall have appropriate professional education and relevant experience in statutory audit and financial reporting combined with specific training on quality assurance reviews.

Furthermore, the selection of reviewers for specific quality assurance review assignments shall be effected in accordance with an objective procedure designed to ensure that there are no conflicts of interest between the reviewers and the statutory auditor or audit firm under review. The quality assurance review shall be the subject of a report which shall contain the main conclusions of the quality assurance review and quality assurance reviews shall take place at least every six years. The recommendations of quality reviews shall be followed up by the statutory auditor or audit firm within a reasonable period. If the recommendations referred are not followed up, the statutory auditor or audit firm shall, if applicable, be subject to the system of disciplinary actions or penalties.

National legislation in Finland (the Finnish Auditing Act 459/2007) stipulates the execution of Audit directive. According to 24 § auditor has to assure the quality of his audits and participate quality assurance review defined in 40 §. Quality assurance reviews in Finland are managed by the Finnish Central Chamber of Commerce.

Finland

Audit environment in Finland

The audit market in Finland is divided to two tiers. First-tier auditors are called KHT auditors. Second-tier auditors are called HTM auditors. Becoming a first-tier auditor requires a Master's Degree. KHT exam has a low passing rate and it's considered to be more demanding than HTM exam. Both of the exams require also three years of auditing experience as a prerequisite. Future first-tier auditors have to be in supervision of another first-tier auditor, which makes the requirement a bit more challenging for them. (Knechel, Niemi & Sundgren 2008: 67.)

First-tier auditors are approved and supervised by the Central Chamber of Commerce while second-tier auditor are approved and supervised by regional Chambers of Commerce. The

largest companies and all listed companies in Finland are required to hire a first-tier auditor. Because of this limitation the clients of second-tier auditors are mostly small and medium-sized companies. (Niemi 2004: 545.)

The Finnish Auditing Act states that if two of the following criteria are met, an entity has to choose a first-tier auditor:

1. Total assets are over 25 million euro
2. Gross revenues exceed 50 million euro
3. Number of personnel is over 300 on average (The Finnish Auditing Act 2007/459)

Only the small entities in Finland can choose not to be audited. From three criteria only one can be exceeded if a company wants to remain unaudited. Not only financial information of the previous fiscal year is significant but also the year before that. The three criteria are as follows:

1. Total assets are over 100 000 euro
2. Gross revenues exceed 200 000 euro
3. Number of personnel is over 3 on average. (The Finnish Auditing Act 2007/459)

In the beginning of the year 2015 there were 780 first-tier auditors and 637 second-tier auditors in Finland. In addition to that there are 38 first-tier audit firms and 32 second-tier audit firms in Finland (The Auditing Board of The Central Chamber of Commerce 2015).

Quality assurance reviews

The Finnish Auditing Act requires all auditors in Finland to participate in quality assurance reviews. Quality assurance review will be conducted every third year for auditors auditing public interest entities and every sixth year for other auditors. (The Auditing Board of The Central Chamber of Commerce 2015). Reviews of audit firms auditing public interest entities are conducted by a quality assurance team. Typically this team includes 2-6 people and its purpose is to identify target areas which the audit firms have to develop further to ensure good quality. (The Auditing Board of The Central Chamber of Commerce 2015).

The Quality Section set up by the Auditing Board of The Central Chamber of Commerce supervises and instructs the quality assurance process. The head of the section, quality assurance director, composes an annual quality assurance plan for individual auditors which define for example auditors who will be reviewed and who will conduct the review. The Auditing Board then accepts the plan for first-tier auditors and Auditing committees of regional Chambers of Commerce for second-tier auditors. Quality assurance reviewers are other professional auditors. Quality assurance reviews were started in 2009 and in the period of 2009–2011 altogether 412 quality assurance reviews have been conducted. When the six-year quality assurance period ends in 2013 practically all the auditors in Finland are reviewed once. (The Auditing Board of The Central Chamber of Commerce 2015).

Reliability of peer review quality

Results of the peer review process could be regarded as a direct indicator of audit quality. However, there might be some concerns about the reliability of the peer review process. Wallace (1991) notes that these concerns about moral hazards related to peer reviewer, potential selection biases and timeliness of the reports are anyhow without a merit. There have been a few studies that link peer review results to audit quality. Colbert and Murray (1998) find that bigger auditors receive better results from peer reviews and that previous reviews help getting better results from latter reviews.

Casterella et al. (2009) link the results of the peer review process to proprietary files of an

insurance company indicating audit failures (litigation risk) and conclude that peer reviews are an effective measure of actual audit quality. Hilary and Lennox (2005) find that auditors receiving clean reports gain clients while auditors with modified or adverse reports lose them, which indicates that clients also consider that peer review ratings are an effective measure of audit quality.

RESEARCH HYPOTHESES

Economic bonding

In literature auditor independence is defined as the (conditional) probability that an auditor will report a discovered breach (Watts and Zimmerman 1981, 1986; DeAngelo 1981). It is argued that economic rents associated with audit fees create an economic bond between the auditor and client that can jeopardize auditor's independence (DeAngelo 1981; Magee and Tseng 1990). Therefore, it is possible that in order to retain these revenues, auditors may compromise their independence leading to impaired quality (DeFond et al. 2002; Craswell et al. 2002; Hope and Langli 2010). Thus, auditors should identify and evaluate threats to their independence and reduce them to an acceptable level. Evidence on economic bonding is however mixed. Some studies have found auditor independence impairment to be associated with economic bond (e.g. Frankel et al. 2002; Knechel et al. 2013) whereas some studies found no evidence for this association (DeFond et al. 2002; Lennox 1999; Hardies et al. 2012).

Evidence on economic bonding depends on the level of relationship considered. Research on bonding is recently begun to study audit engagement partners on an individual auditor level instead of local and national audit firm levels (DeFond and Francis 2005; Chen et al. 2010; Hardies et al. 2012; Knechel et al. 2013). This relationship between an individual audit partner and the client has been considered as important as the relationship between the audit firm and the client (Miller 1992; Wallman 1996). It has also been suggested that audit process is affected by the task performing auditor (Church et al. 2008). Engagement partners make the most important decisions in every audit engagement, since they plan and implement the engagement and ultimately determine the type of audit report to be issued to the client (Chin and Chi 2009; Reichelt and Wang 2010). Furthermore, a specific client is also considered more likely to be economically as important for an audit partner as for the entire audit firm or local office (Hardies et al. 2012). Chen et al. (2010) found that client importance measured on the individual auditor level, but not on the audit office or firm level, impairs audit quality in China in terms of a lower probability of a modified audit opinion issuance. In Finland, where reputation risk and litigation risk are low, individual auditor incentives favor avoiding client disputes so as to avoid the loss of the client leading to impaired quality (Knechel and Vanstraelen 2007; Hardies et al. 2012). This study concentrates on the individual auditor level.

The individual auditor can however react to economic bonding in different ways due to tensions between professional intention to provide good quality to the client and willingness to impair quality to save the client from reputation and economic losses. It can be expected that impaired quality (or, compromising) in terms of traditional measures is likely to emerge only in special circumstances when the client already suffers from financial difficulties or when a modified audit opinion can lead it to such difficulties (risky clients). However, in normal circumstances it can be expected that economic bonding may lead the individual auditor to provide higher quality to more important clients when quality is measured by overall quality measures such as Peer Review. This kind of behavior is associated with a strategy to build a reputation by providing higher than expected quality for important clients. This kind of strategy is supported by empirical evidence (Reynolds and Francis 2001; Gaver and Paterson

2007; Knechel et al. 2013) showing that auditors are more conservative with clients that are most important.

The clients in our data are all private firms. The tendency to provide more important clients with better quality can be stronger for clients who are private firms than clients who are public firms, since private firms do not have a broad shareholder base to which they are accountable (Knechel and Vanstraelen 2007). For public firms, the differences in their economic importance and financial reporting quality are smaller than for private firms (Ball and Shivakumar 2008). Therefore, due to tensions between providing high overall quality and avoiding disputes with the client (compromising), we present the first research hypothesis in the following general form:

H₁: There is dependence between the economic importance of client (private firm) and audit quality (Peer Review) of an individual engagement partner.

Auditor safeguard

Even though there are some mitigating effects (safeguards) against economic bonding, they are not empirically widely studied. The lack of research may be due to the sensitive nature of the issue as well as a lack of data (Knechel et al. 2013). Evidence shows that economic bonding can partly be mitigated by concerns about an auditor's reputation (Reynolds and Francis 2000; Weber et al. 2008) and the risk of litigation (Krishnan and Krishnan 1997; Shu 2000). Moreover, incentive for individual partners to accept risky clients can be mitigated by profit sharing rules (Burrows and Black 1998; Bedard et al. 2008). To contribute to this scarce research we are examining whether auditor's good economic position acts as a safeguard for economic bonding. This kind of hypothesis is supported by Knechel et al. (2013). They show for Swedish data that wealthy audit partners with high levels of annual compensation are likely to be less affected by the potential client pressure implying greater auditor independence. In their study, audit quality is measured as propensity to issue a going-concern opinion.

Thus, we assume that potential economic bonding between important clients and individual auditor is at least partly mitigated by auditor's good economic wealth. When an auditor's economic position is good, the relative economic influence (bond) of an important client is less than when his or her position is not as good. In summary, based on previous research and this kind of reasoning we hypothesize that:

H₂: The economic bonding is mitigated by good economic position of an individual engagement partner.

RESEARCH DESIGN

Data sources

The empirical data of our research consist of 264 auditors' quality assurance reviews including two audit engagements (cases) from each auditor with complete data conducted in 2010 (107 auditors), 2011 (114 auditors), and 2012 (43 auditors). Thus, the number of observations (engagements) in statistical analyses is equal to $2 \cdot 264 = 528$. These data are received from The Finnish Central Chamber of Commerce and they include all the archival material from every review. The research data are highly confidential and therefore not publicly available. For this reason, any detailed confidential information cannot be published in this study. The cases (engagements) for peer review are selected in the way that one of the engagements represents a very important client in the auditor's portfolio whereas another engagement is randomly selected from the rest clients in the portfolio. In our sample, all clients are private companies. These kinds of cases provide us with an excellent opportunity to assess the influence of client's importance on audit quality (H₁) when comparing the two cases.

The data are extracted from two engagement forms for peer reviewed audit engagements. The data also include a form where personal quality control system is reviewed, a form for pre-review information gathering and a report with the result, both in numeric and verbal form. The detailed questions in the engagement forms are used to assess the degree of the compliance of audit work with International Auditing Standards (ISA) and International Standard on Quality Control 1 (ISQC1) separately in both engagements. The form for pre-review information gathering is the main source for information about individual auditor characteristics. These variables are used as control variables in the research model.

In addition, part of our data is received from public sources. Income information of the reviewed auditors is received from a Finnish private tax company (Veropörssi) that is specialized in gathering tax data for their customers. Public tax data are gathered for all auditors in the sample in their review year (2010, 2011, or 2012). Earned income (annual salaries) and unearned income (capital gains) figures are separated in tax data. Taxable unearned income is not an exact measure of capital gains, since some types of income are not taxable. It was not possible to get information about the taxable wealth of auditors because it is not public information in Finland (cf. Knechel et al. 2013). These data of taxable earned and unearned income are used in assess the mitigation effect of economic position on economic bond (H₂).

Variables

The audit quality is reflected by four peer review variables. The measurement of quality is not straightforward because the engagement forms are not identical in each year due to changes in detailed questions. In all, the forms from three years contained 155 detailed review questions and 118 of them (76.1%) are comparable over years and included in the analysis. The number of responded questions is not identical for each engagement, since some questions are not appropriate for every case. The questions are classified in four classes according to the stage of audit process that the standards are associated with: 1) planning audit engagement (9 questions); 2) analytical procedure 1 (31 questions); 3) analytical procedure 2 (48 questions); and 4) conclusions and reporting (30 questions). Classes of analytical procedures 2 and conclusions and reporting respectively include questions about discretionary accruals (earnings management, EM) and modified audit (e.g., going concern, GC) opinions which are main measures of audit quality used in prior studies. For each class, a summary measure is constructed reflecting the degree of compliance (%) with standards (yes or no). Finally, an overall summary measure is calculated as the degree of compliance with all 118 standard questions.

The variables reflecting the differences in the compliance with standards between bigger (more important) and smaller (less important) clients are used as dependent variables in our research models to test hypotheses H₁ and H₂. The size (economic importance) of clients is measured by annual turnover. The research models also include a set of independent and control variables. The economic position of the auditor to test H₂ is measured by two independent variables in a logarithmic form: total annual income and unearned annual income (capital gains). In this analysis, total annual income measures total income available to the auditor whereas unearned income is proxy for taxable wealth that is not publicly available.

The research models also include a set of control variables (cf. Knechel et al. 2012; Knechel et al. 2013). Most control variables deal with the characteristics of the author and his or her work. However, the results are firstly controlled for the bigger client's (logarithmic) turnover to reflect its importance. The auditor's characteristics and work are measured by eight variables.

Four of these control variables are dummy variables: full-time auditor (0 = part-time, 1 = full time); gender (0 = female; 1 = male); CPA exam (0 = HTM, 1 = KHT); and company form (0 = private, 1 = company). The rest of the control variables reflect the auditor's age, experience, and work load; age in years; age of CPA exam; (logarithmic) number of annual engagements; and number of annual hours of audit work.

Statistical methods

The research data provides us an excellent opportunity to test the hypotheses using simple statistical methods. For each auditor peer review results from 264 bigger (important) and 264 smaller (random) engagement clients are available. First, we analyze the pairwise differences in the audit quality measures between big and small clients using the paired t test. In this case, the results are controlled for other variables than the size of client, since the engagements of the big and small clients are conducted by the same auditor in the same year. If the difference in the audit quality between big and small clients is positive and statistically significant, we get general evidence supporting H_1 .

The results of paired t test do not however show whether the potential difference in audit quality between the clients is depending on the auditor's economic position, the big client's size, or the auditor's characteristics and work. Therefore, we use the regression analysis in two different ways to assess this dependence. First, we estimate the following regression equations explaining overall summary quality (compliance with standards) separately for the big and small clients:

$$SC_i(j) = a + b_1X_{1i} + \dots + b_{11}X_{11i} + \epsilon_i \quad (1)$$

where

$SC_i(k)$ = Overall summary compliance (j = big client, small client)

a = constant

b_j = coefficients (j = 1, 2, ..., 11)

X_{1i} = Unearned annual income (Euro), logarithm

X_{2i} = Total annual income (Euro), logarithm

X_{3i} = Client turnover (thousands of Euro), logarithm

X_{4i} = Full-time auditor (0 = part-time, 1 = full-time)

X_{5i} = Gender of auditor (0 = female, 1 = male)

X_{6i} = CPA exam of auditor (0 = HTM, 1 = KHT)

X_{7i} = Company form of auditor (0 = private, 1 = company)

X_{8i} = Age of auditor

X_{9i} = Age of CPA exam

X_{10i} = Number of annual engagements, logarithm

X_{11i} = Number of annual hours in audit work

ϵ_i = residual

i = auditor ($i = 1, 2, \dots, 264$)

If the auditors conduct the audit engagements of the big and small clients in the same way (with the same compliance with standards), the regression equations in (1) give identical results (quality determination functions) for the big and small clients. Moreover, the marginal effect of client size (logarithmic turnover) X_{3i} (b_{3i}) should be insignificant. This comparison of estimation results between the two clients also serves as a robustness test for explaining audit quality.

Secondly, we estimate the following regression equations explaining the potential difference in

the audit quality (compliance with standards) between the big client and the small client separately for the five quality measures (all standards and four classes of standards):

$$DSC_i(j) = a + b_1X_{1i} + \dots + b_{11}X_{11i} + \dots \quad (2)$$

where the variables are the same as for (1) except for the following:

$DSC_i(j)$ = Difference in compliance with standards (j = all standards, planning audit engagement, analytical procedures 1, analytical procedures 2, conclusions and reporting)

X_{3i} = Big client turnover (thousands of Euro), logarithm

In equation (2) the focus is set on the coefficients of X_{1i} , X_{2i} , and X_{3i} . If the coefficient of X_{3i} (b_{3i}) is statistically significant, the size of the big client affects the difference in audit quality between the big client and the small client supporting H₁. The coefficients of X_{1i} and X_{2i} (b_{1i} and b_{2i}) reflect the auditor's economic position of the quality difference allowing us to test H₂. To support H₂, they should be statistically significant and have an opposite sign from the coefficient of X_{3i} (b_{3i}) to indicate a mitigating effect.

EMPIRICAL RESULTS

Comparative analysis

Table 1 shows descriptive statistics for the client size and the measures of compliance with audit standards. The median turnover of the big client is about 4.0 million Euros whereas it is only 1.2 million Euros for the small client. Both size measures (turnover and total assets) show a high skewness and kurtosis. The statistics of the compliance measures indicate a very high audit quality for Finnish auditors. For both groups of clients the median of compliance with all standards is over 85%. The compliance with standards is exceptionally high in conclusions and reporting for both groups. The compliance with standards is lowest in analytical procedures being on average higher for big clients. For big and small clients the quality measures show a low skewness and kurtosis.

Table 1. Descriptive statistics of compliance measures for big and small audit clients (N=264).

Variable	Mean	Median	Standard Deviation	Skewness	Kurtosis
1. Big client					
Client turnover (thousands of Euro)	8641,09	3997,00	15959,85	6,31	53,42
Client total assets (thousands of Euro)	4769,57	2130,00	8895,62	5,79	44,14
Compliance (%) with all standards	77,92	85,81	22,08	-1,30	1,01
Compliance (%) with standards in planning audit engagement	81,20	91,67	23,70	-1,37	0,93
Compliance (%) with standards in analytical procedures 1	71,02	79,17	26,64	-0,85	-0,39
Compliance (%) with standards in analytical procedures 2	77,22	83,33	22,73	-1,03	0,26
Compliance (%) with standards in conclusions and reporting	88,31	94,74	18,69	-2,37	5,30
2. Small client					
Client turnover (thousands of Euro)	2521,14	1246,50	3700,36	3,69	17,31
Client total assets (thousands of Euro)	2640,43	940,00	9049,33	11,62	156,56
Compliance (%) with all standards	78,15	85,31	20,88	-1,19	0,72
Compliance (%) with standards in planning audit engagement	81,04	91,67	24,28	-1,30	0,53
Compliance (%) with standards in analytical procedures 1	70,14	77,78	26,36	-0,79	-0,34
Compliance (%) with standards in analytical procedures 2	75,80	80,38	22,22	-0,88	-0,01
Compliance (%) with standards in conclusions and reporting	88,75	95,00	17,76	-2,23	4,69

Table 2 shows the paired t-tests for the variables. The pairwise differences in client size are statistically significant. The significance (p-value) of the test statistic is lower for client turnover than for total assets as a measure of size. The pairwise differences in compliance measures between big and small clients are negligible indicating high independence in auditing from this point of view. The most notable difference is found in the compliance with analytical procedures (part 2) that is significant at p-value 10% (two-way significance). The difference is positive referring to higher compliance with standards in big client engagements.

Table 2. Paired differences of compliance measures between big and small audit clients of auditors (N=264).

Variable	Paired Differences				
	Mean	Standard Deviation	Standard Error Mean	t statistic	p-value #
Client turnover (thousands of Euro)	6119,95	15056,94	926,69	6,60	0,0000
Client total assets (thousands of Euro)	2134,19	12267,72	769,75	2,77	0,0060
Compliance (%) with all standards	-0,23	10,93	0,67	-0,34	0,7320
Compliance (%) with standards in planning audit engagement	0,28	17,83	1,13	0,25	0,8070
Compliance (%) with standards in analytical procedures 1	0,94	15,75	0,99	0,96	0,3410
Compliance (%) with standards in analytical procedures 2	1,81	15,83	0,99	1,83	0,0690
Compliance (%) with standards in conclusions and reporting	-0,48	10,64	0,66	-0,73	0,4680

Note:

= 2-tailed probability

Appendix 1 presents the statistical distributions (percentiles) of the differences in compliance measures between big and small clients. These distributions again emphasize the small differences found in audit quality. The distributions are all symmetric around zero obviously referring to a random nature of difference. There is not found any identifiable tendency for concentration on positive or negative side of the distributions. For each distribution, the median difference is zero. The auditors show highest consistency in planning audit engagement and in conclusions and reporting where about 40% of the auditors achieve exactly the same compliance for big and small clients. Thus, in summary, the descriptive statistical results do not give empirical support for H₁. Finnish auditors are likely to conduct audit engagements with very comparable quality for big and small clients.

Regression results

Table 3 shows descriptive statistics for the variables used in the regression equations (1) and (2) as dependent and independent variables. The variables reflecting the difference in compliance show only a low skewness in their distributions due to a high symmetry. However, they show higher kurtosis due to the concentration of differences around zero (indicating high consistency in audit quality). The distributions of the independent variables are also only slightly skewed for the sake of logarithmic transformations. In general, the kurtosis of these distributions is low except for the (logarithmic) unearned annual income. The high kurtosis in this case is due to that about 30% of the auditors have not capital gains at all. This fact also increases the (absolute) skewness of the distribution. The descriptive statistics show that 51% of the auditors are full-time auditors, and that 75% of them are male. In addition, the average age of the sample auditors is quite high (58 years) and they have passed their CPA more than twenty years ago.

Appendix 2 shows that the correlations between the independent variables are generally very low. The highest correlation is found between the (logarithmic) numbers of annual engagements and annual hours in audit work (0.77). These variables referring to the amount of auditor's work are also positively correlated with full-time auditor dummy (0.48 and 0.56) and the bigger client turnover (0.41 and 0.44). These correlations are too low to lead any serious

multicollinearity. For all regression analyses, the variance inflation factors (VIF) are less than 3. Appendix 2 also shows that the correlations between the dependent compliance measures and the independent variables are very low. Thus, it is expected that the strength of dependence in the regression equations explaining overall compliance with standards or its parts is also weak.

Table 3. Descriptive statistics of the dependent and independent variables (N=264).

Variable	Mean	Median	Standard Deviation	Skewness	Kurtosis
1. Difference in variable (dependent variable)					
Compliance (%) with all standards	-0,23	0,00	10,93	0,15	7,03
Compliance (%) with standards in planning audit engagement	0,28	0,00	17,83	0,50	4,82
Compliance (%) with standards in analytical procedures 1	0,94	0,00	15,75	0,13	3,33
Compliance (%) with standards in analytical procedures 2	1,81	0,00	15,83	0,21	1,77
Compliance (%) with standards in conclusions and reporting	-0,48	0,00	10,64	-0,59	9,81
2. Independent variable					
Unearned annual income (Euro), logarithm	5,42	7,16	4,23	-0,31	-1,58
Total annual income (Euro), logarithm	10,91	10,98	0,79	-3,79	33,19
Bigger client turnover (thousands of Euro), logarithm	8,35	8,29	1,15	0,18	0,20
Full-time auditor (0 = part-time, 1 = full-time)	0,51	1,00	0,50	-0,05	-2,01
Gender of auditor (0 = female, 1 = male)	0,75	1,00	0,44	-1,14	-0,71
CPA exam of auditor (0 = HTM, 1 = KHT)	0,22	0,00	0,41	1,39	-0,07
Company form of auditor (0 = private, 1 = company)	0,13	0,00	0,34	2,18	2,77
Age of auditor	57,56	59,00	7,77	-0,92	0,41
Age of CPA exam	21,42	22,00	8,90	-0,26	-0,68
Number of annual engagements, logarithm	4,36	4,46	1,02	-0,34	0,15
Number of annual hours in audit work	578,78	428,00	452,22	1,20	1,15

Table 4 presents the estimation results of regression equation (1) separately for the big and small client. In general, the association between the dependent variable (overall summary compliance with standards) and the independent variables is not strong for either model. This indicates that it is not easy to explain statistically audit quality in terms of peer review. The average differences in quality between auditors are quite small and random. There are however a couple of statistically significant similarities in the estimated models. First, the total annual income has a positive relationship with quality for both big and small clients. It indicates that the auditor's income is correlated with competence to meet standards in engagements. Second, full-time auditors show a higher compliance with standards irrespective of client's size. Third, the older of CPA exam, the lower is the compliance in both big and small cases. Thus, those auditors who have recently passed CPA exam meet the standards better than other auditors.

The client's size and the auditor's unearned income have a statistically insignificant relationship with compliance for both models. Thus, the results of quality determination are quite robust leading in general to similar functions for the compliance with standards in engagements of big and small clients. However, the signs of the (statistically insignificant) coefficients of the client's size and the auditor's unearned income are opposite for small client and big client models. This finding raises an expectation that in spite of insignificant

coefficients these variables may play some roles when explaining the difference in audit quality between the big and small clients.

Table 4. Regression models for compliance (%) with all standards (dependent variable) (N=264).

Independent variable	Big client:			Small client:		
	Coefficient	t statistic	p-value#	Coefficient	t statistic	p-value#
Constant	21,751	0,924	0,356	46,837	2,123	0,035
Unearned annual income (Euro), logarithm	-0,351	-1,055	0,293	0,000	0,001	0,999
Total annual income (Euro), logarithm	4,649	2,603	0,010	3,049	1,793	0,074
Client (big/small) turnover (thousands of Euro), logarithm	0,832	0,612	0,541	-0,900	-0,832	0,406
Full-time auditor (0 = part-time, 1 = full-time)	6,482	1,857	0,064	5,145	1,556	0,121
Gender of auditor (0 = female, 1 = male)	1,772	0,552	0,581	1,938	0,634	0,527
CPA exam of auditor (0 = HTM, 1 = KHT)	-0,271	-0,075	0,941	-1,578	-0,460	0,646
Company form of auditor (0 = private, 1 = company)	-0,620	-0,146	0,884	-0,029	-0,007	0,994
Age of auditor	0,049	0,191	0,849	-0,011	-0,046	0,964
Age of CPA exam	-0,424	-1,900	0,059	-0,392	-1,835	0,068
Number of annual engagements, logarithm	0,045	0,021	0,984	2,008	0,934	0,351
Number of annual hours in audit work	0,003	0,673	0,502	0,002	0,355	0,723
Coefficient of determination (R-Square) (adjusted)	0,089	(0,049)		0,072	(0,032)	
F statistic (significance)	2,233	(0,013)		1,787	(0,057)	

Note:

= 2-tailed probability

Table 5 shows the regression results for equation (2) explaining the difference in compliance with standards between big and small clients. The strength of dependence between the difference and the independent variables (predictors) is weak which was expected due to the random nature of difference distributions. The first part of the table shows the results for a model estimated without control variables. The difference in compliance is significantly affected by big client turnover (positively) and unearned annual income (negatively). The effect of annual income is positive but statistically insignificant. The second part of the table shows the results for the full model. The robustness of the results is emphasized by the finding that the coefficients of the three main variables are only slightly changed but the coefficient of annual income is now significant. The control variables do not have any significant effect on the difference in compliance with standards. In a robustness test, client turnover was replaced by client total assets. However, it had only a negligible effect on results.

Thus, although the differences in compliance between big and small clients are small and largely random, our findings give empirical support to H₁ and H₂. First, there is a positive dependence between difference of compliance and the big client's turnover. The bigger (big) client, the higher is the compliance for the big client in relation to that for the smaller client. Thus, although the effect is weak, the findings support H₁ and the conclusion that Finnish auditors to some degree trust a strategy to build a reputation by providing higher quality for important clients (Reynolds and Francis 2001; Gaver and Paterson, 2007; Knechel et al. 2013). However, the findings show that annual income does not act as a safeguard against this

strategy, since its effect on the difference is also positive. Hence, auditors with high annual income tend to provide for the big client higher quality than for the small client. This positive relation between income and difference obviously contradicts with H₂.

Table 5. Regression models for the difference in compliance (%) with all standards between big and small clients (N=264).

Independent variable	Without control variables:			With control variables:		
	Coefficient	t statistic	p-value#	Coefficient	t statistic	p-value#
Constant	-23,288	-2,323	0,021	-23,783	-2,011	0,045
Unearned annual income (Euro), logarithm	-0,353	-2,197	0,029	-0,335	-1,999	0,047
Total annual income (Euro), logarithm	1,134	1,316	0,189	1,509	1,681	0,094
Big client turnover (thousands of Euro), logarithm	1,508	2,599	0,010	1,508	2,204	0,028
Full-time auditor (0 = part-time, 1 = full-time)				1,238	0,706	0,481
Gender of auditor (0 = female, 1 = male)				-0,149	-0,092	0,926
CPA exam of auditor (0 = HTM, 1 = KHT)				1,342	0,733	0,464
Company form of auditor (0 = private, 1 = company)				-0,540	-0,254	0,800
Age of auditor				0,039	0,303	0,762
Age of CPA exam				-0,018	-0,165	0,869
Number of annual engagements, logarithm				-1,625	-1,477	0,141
Number of annual hours in audit work				0,001	0,545	0,586
Coefficient of determination (R-Square) (adjusted)	0,045	(0,034)		0,060	(0,019)	
F statistic (significance)	4,117	(0,007)		1,465	(0,145)	

Note:

= 2-tailed probability

The results however show that the relation between unearned annual income and the difference in compliance is negative and statistically significant. Since capital gains are here used as a proxy of wealth, this finding is consistent with the results got by Knechel et al. (2013) for distressed Swedish firms. Hence, empirical evidence supports H₂ in that high capital gains (wealth) diminish the difference in compliance between the big and small clients. Since capital gains are included in total annual income, the effect is not straightforward but also dependent on the effect of total income. Because of the logarithmic transformation, the marginal effect of unearned income (X_{1i}) on the difference in compliance (DSC_i) is as follows:

$$\frac{DSC_i}{X_{1i}} = \frac{b_1}{X_{1i}} + \frac{b_2}{X_{2i}} \quad (3)$$

The marginal effect of capital gains in (3) is negative if:

$$\frac{X_{1i}}{X_{2i}} > \frac{b_1}{b_2} \quad (4)$$

which shows that in this case the percent of capital gains in total income should be more than 22.2% (-0.335/1.509) to make the effect negative. Thus, although supporting H₂, the auditor's wealth in terms of capital gains must be quite high to act as a safeguard against economic bond. In the present sample, this condition holds for about 17-18% of the auditors getting capital

gains more than 22.2% of total income.

The regression coefficients b_1 , b_2 , and b_3 in Table 5 for capital gains, total income, and big client turnover respectively can be interpreted analyzing the differences of the respective coefficients between regression equations (1) estimated separately for big and small clients using the same independent variables as in (2). For the big client, the regression equation is the same as in Table 4. However, for the small client, the regression equation must be re-estimated using the big client turnover instead of its own turnover as an independent variable. The resulted regression equation is presented in Appendix 3. Using the estimated coefficients in Table 4 and Appendix 3, the differences of the coefficients of capital gains (X_{1i}), total income (X_{2i}), and big client turnover (X_{3i}) between the big and small client models are as follows:

	Big clients model	Small clients model	
Variable	Coefficient	Coefficient	Difference
X_{1i}	-0,351	-0,017	-0,334
X_{2i}	4,649	3,140	1,509
X_{3i}	0,832	-0,675	1,507

The differences of the coefficients in the fourth column almost exactly correspond to the coefficients estimated in the model for the difference in compliance with audit standards (Table 5). The coefficients show that the strong effect of big client turnover (X_{3i}) on the difference in compliance is originated from its positive effect on big client's quality and its negative effect on the small client's quality. Thus, auditors tend to provide higher quality for big clients and lower quality for small clients; the higher is big client turnover. In addition, auditors with higher total income (X_{2i}) tend to provide higher quality for both big and small clients but the tendency is clearly stronger for big clients increasing the difference in compliance between these clients. Finally, capital gains (X_{1i}) act as an effective safeguard against this bonding for big clients but not for small clients.

Partial results

Table 6 presents the estimated regression equations for equation (2) explaining the difference in compliance with standards between big and small clients separately for all four parts of compliance with standards. The results show that the differences in audit quality are largely random and only for analytical procedures 2 the regression is statistically marginally significant (p-value 0.06). For each part of compliance, the coefficients of (logarithmic) unearned income (capital gains) are negative although being insignificant in the 2-tailed test. However, for analytical procedures 2 this coefficient is significant in the 1-tailed test at p-level < 0.10 reflecting a potential safeguarding effect (1-tailed p-value 0.09). The coefficients of (logarithmic) total annual income are not consistent over the parts of compliance being negative for two parts and positive for two parts of compliance. The only statistically significant (positive) coefficient of this variable at p-level < 0.10 is got for the difference in the compliance for conclusions and reporting (p-value 0.08).

Table 6. Regression models for the difference in different compliance measures between big and small clients (N=264).

Independent variable	Difference in compliance with audit standards in:							
	Planning audit engagement		Analytical procedures 1		Analytical procedures 2		Conclusions and reporting	
	Coefficient	p-value #	Coefficient	p-value#	Coefficient	p-value#	Coefficient	p-value #
Constant	21,140	0,405	18,329	0,297	-7,309	0,671	-3,272	0,777
Unearned annual income (Euro), logarithm	-0,297	0,306	-0,130	0,604	-0,329	0,181	-0,094	0,567
Total annual income (Euro), logarithm	-1,612	0,405	1,486	0,268	-0,309	0,814	1,544	0,080
Big client turnover (thousands of Euro), logarithm	1,575	0,189	1,225	0,235	2,694	0,008	-0,362	0,588
Full-time auditor (0 = part-time, 1 = full-time)	0,476	0,874	2,173	0,407	2,406	0,354	-1,131	0,513
Gender of auditor (0 = female, 1 = male)	4,459	0,114	0,592	0,806	-3,105	0,194	-2,068	0,191
CPA exam of auditor (0 = HTM, 1 = KHT)	0,357	0,907	0,104	0,969	3,306	0,215	0,899	0,616
Company form of auditor (0 = private, 1 = company)	-0,956	0,786	-3,479	0,274	1,535	0,619	0,773	0,710
Age of auditor	-0,235	0,287	-0,031	0,874	-0,004	0,983	-0,055	0,664
Age of CPA exam	0,238	0,212	0,108	0,513	0,063	0,703	-0,110	0,323
Number of annual engagements, logarithm	-2,584	0,169	-2,136	0,199	-1,851	0,259	-1,431	0,184
Number of annual hours in audit work	0,002	0,570	0,002	0,612	-0,002	0,599	0,005	0,036
Coefficient of determination (R-Square) (adjusted)	0,048	(0,004)	0,029	(0,015)	0,074	(0,032)	0,057	(0,015)
F statistic (significance)	1,08	(0,378)	0,652	(0,782)	1,766	(0,060)	1,366	(0,190)

Note:

= 2-tailed probability

There are only two additional statistically significant coefficients in the models for the four parts of compliance. Firstly, a significant coefficient is obtained for the difference in the compliance of analytical procedures 2. For this part of compliance, the coefficient of big client turnover is positive and statistically very significant (p-value 0.008). This strong client size effect is expected due to the significant difference found in this part between big and small clients (Table 2). Secondly, for the compliance of conclusions and reporting the number of annual hours in audit work has a significant positive effect (p-value 0.036). This result implies that the amount of practical audit work improves the quality of audit in conclusions and reporting. The coefficient shows that an increase of 1000 hours in audit work increases compliance with standards in this part by 5 percent units.

In summary, the partial regression analyses do not give consistent overall support to the research hypotheses. However, they obviously give partial support. It seems that auditors with higher annual income are likely to make better quality for big clients in conclusions and reporting conforming to H₂. It also seems that auditors are more likely to make better quality to big clients in analytical procedures 2 supporting H₁. For these procedures the total and capital income measures have a negative (2-tailed insignificant) coefficient only giving weak

support for safeguarding (H₂). The findings imply that economic bonding and safeguarding are so weakly associated with auditing that they are systematically identifiable only at the level of overall quality as a sum of all parts of compliance. This kind of general conclusion is supported by correlations between the compliance measures (Appendix 2). The compliance with all standards is strongly correlated with all parts of compliance but the correlations between the parts are however much lower reflecting their heterogeneity.

SUMMARY AND CONCLUSIONS

The first objective of this study was to examine whether the economic bond between an individual engagement partner and his or her client threatens auditor independence and thus audit quality (H₁). The second objective was to investigate whether auditor's good economic position acts as a safeguard mitigating at least partly the effects of this economic bond (H₂). The self-interest threats are due to such reasons as dependence on total fees from an assurance client, concern about the possibility of losing the engagement, or contingent fees. Many studies have found auditor independence impairment due to economic bond associated with lower quality (Frankel et al. 2002; Knechel et al. 2013). However, some studies have not found evidence for this association (DeFond et al. 2002; Lennox 1999; Hardies et al. 2012). There is lack of research on safeguarding in this situation. However, Knechel et al. (2013) showed that for distressed firms the client's economic importance increased and the auditor's wealth (as a safeguard) decreased the auditor's propensity to give a modified (going concern) audit opinion.

This study makes several contributions to the existing research. First, we contribute to the scarce literature that examines audit quality at individual engagement level (Chen et al. 2010; Francis and Yu 2009; Hardies et al. 2012; Knechel et al. 2013). Second, we extend the study by Hardies et al. (2012) taking account of client's turnover and auditor's taxable income. Third, we add findings for a quality measure that has not earlier been tested in this context, peer review quality results (compliance with audit standards). Hardies et al. (2012) and Knechel et al. (2013) both measure audit quality as a propensity to give a modified opinions to clients that represent a material portion of their client portfolio. Fourth, we are also testing for Finnish data if auditor's economic position can act as safeguard against potentially impaired quality. This question is rarely analyzed in audit research and there is lack of general empirical evidence. Knechel et al. (2013) analyzed this question only for distressed, equity-lost, and bankrupt firms showing that auditor's wealth acts as a safeguard only for distressed firms.

This study makes use of a very special data based on peer review results of 264 Finnish auditors. These data provide us with an excellent opportunity to test the research hypotheses because the review is based on engagements with a very important client and with a randomly selected average client. The comparison of the quality of audit in terms of peer review in these two engagements for each auditor makes it possible to assess the effect of client importance at the individual audit partner level. The data also include background information about the auditor and about his or her earned and unearned annual income from the year of peer review. In Finland, taxable wealth is not public as it is in Sweden (Knechel et al. 2013). Therefore, we use taxable unearned income (capital gains) as a proxy of wealth.

The empirical evidence shows that the quality of audit and the independence of auditors in terms of economic bonding are very high in Finland. High quality is reflected by high compliance with audit standards. The differences in peer reviewed quality in audit for the big client and small client engagement were found to be negligible and seemingly random. This obviously led to very low coefficients of determination in regression equations when

explaining these differences. However, our evidence showed that the effects of auditor's income measures and big client's turnover on the difference are statistically significant. Firstly, evidence showed that the difference is larger; the bigger is the big client's turnover. This finding supports H₁ and indicates that Finnish auditors are likely to provide more important clients with marginally higher audit quality. Thus, auditors are not willing to compromise audit quality due to economic bonding but merely use a strategy to build a reputation by providing higher than expected quality for important clients. This evidence is consistent with empirical evidence that auditors are more conservative with clients that are most important (Reynolds and Francis 2001; Gaver and Paterson, 2007; Knechel et al. 2013).

Secondly, the study also gives new evidence on the role of income in safeguarding the auditor from economic bonding. Evidence shows that the level of annual earned income (salaries) does not act as a safeguard against bonding but on the contrary increases the difference in audit quality between big and small client engagements. This means that the difference is larger; the higher are auditor's annual salaries. In practice, this finding can indicate that competent auditors with high salaries are likely to provide important customers with exceptionally good quality. However, evidence shows that unearned income or capital gains (as a proxy of wealth) acts as a safeguard against this kind of strategy consistently with H₂. Thus, the difference in audit quality between big and small clients is lower; the higher are capital gains got by the auditor. This negative effect is however effective only for a part (17-18%) of auditors, since capital gains must be significant (at least 22% of total income) to make safeguarding effective.

The partial results considering different parts of overall audit quality showed that the effects of economic bonding and safeguarding are not similar for all parts of audit process. However, they obviously give partial support to H₁ and H₂. Evidence shows that auditors with higher annual income are likely to make better quality for big clients in conclusions and reporting conforming to H₂. Evidence also supports H₁ when showing that in a part of analytical procedures auditors are more likely to provide better quality to big clients; the more important is the client. For these analytical procedures the total and capital income measures have a negative coefficient giving weak support for safeguarding (H₂). These results are consistent with previous studies, since such previously used audit quality measures as discretionary accruals (earning management) and modified audit reports are focused in these parts of audit process (analytical procedures and conclusions and reporting) (Reynolds and Francis 2001; Gaver and Paterson, 2007; Knechel et al. 2013).

The scope of this study is limited in many respects. First, the empirical data from peer reviews is only got from auditors having private firms as clients. Therefore, the auditors of public firms are not included in this study and the results cannot potentially be generalized for these auditors. Secondly, our results are drawn for a sample of auditors in Finland, where reputation risk and litigation risk are low. Thirdly, we used in our analyses taxable unearned income as a proxy of the taxable wealth of auditors because this wealth is not public information in Finland. Fourthly, we used only simple statistical methods such as the regression analysis in analyzing the data. Thus, future research should generalize the results and expand this kind of audit quality analysis to auditors of public firms and to audit markets in other countries than Finland. Moreover, future research should use more proper measures of wealth and more advanced statistical methods.

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APPENDICES

Appendix 1. Statistical distributions of the differences in compliance with standards between big and small clients.

Difference in compliance (%) between big and small clients in:

Percentile	All standards	Planning audit engagement	Analytical procedures 1	Analytical procedures 2	Conclusions and reporting
10	-8,4894	-15,3846	-16,0079	-14,1538	-7,5188
15	-6,0528	-9,0909	-11,3971	-9,5141	-5,2632
20	-4,6154	-7,6923	-6,6666	-7,0513	-4,7619
25	-2,9811	-2,7778	-5,2631	-4,5454	-0,6957
30	-1,8448	0,0000	-3,6232	-2,5641	0,0000
35	-1,4571	0,0000	-0,5848	0,0000	0,0000
40	-0,8772	0,0000	0,0000	0,0000	0,0000
45	-0,1254	0,0000	0,0000	0,0000	0,0000
50	0,0000	0,0000	0,0000	0,0000	0,0000
55	0,2554	0,0000	0,3676	0,0000	0,0000
65	1,7669	0,0000	4,1667	3,0960	0,0000
70	2,5641	0,0000	6,1404	5,0000	0,0000
75	3,9474	0,7576	7,8432	8,3334	0,8281
80	5,4546	7,6923	10,3261	12,5000	4,3478
85	6,7099	10,0000	14,6199	16,6667	5,5556
90	10,2843	16,6667	18,5185	20,0000	6,8421

Appendix 2. Pearson correlations of the dependent and independent variables (N=264).

	Number of variable:															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Compliance (%) with all standards	1,0 0															
2. Compliance (%) with standards in planning audit engagement	0,6 9*	1,0 0														
3. Compliance (%) with standards in analytical procedures 1	0,7 3*	0,3 7*	1,0 0													
4. Compliance (%) with standards in analytical procedures 2	0,5 8*	0,2 5*	0,1 5*	1,0 0												
5. Compliance (%) with standards in conclusions and reporting	0,6 1*	0,2 4*	0,1 9*	0,3 6*	1,0 0											
6. Unearned annual income (Euro), logarithm	- 0,0 6	- 0,0 7	- 0,0 1	- 0,0 7	- 0,0 2	1,0 0										
7. Total annual income (Euro), logarithm	0,0 2	- 0,0 6	0,0 5	0,0 2	0,0 5	0,2 3*	1,0 0									
8. Bigger client turnover (thousands of Euro), logarithm	0,1 0	0,1 1	0,0 8	0,1 2	- 0,0 4	0,1 1	0,0 6	1,0 0								
9. Full-time auditor (0 = part-time, 1 = full-time)	0,0 7	0,0 5	0,0 3	0,0 9	0,0 2	0,0 4	- 0,1 4*	0,3 9*	1,0 0							
10. Gender of auditor (0 = female, 1 = male)	0,0 1	0,1 3	0,0 5	- 0,0 6	- 0,1 1	0,1 2	0,1 4*	0,1 8*	0,0 7	1,0 0						
11. CPA exam of auditor (0 = HTM, 1 = KHT)	0,1 2	0,0 8	0,0 5	0,1 4*	0,0 6	0,0 1	0,0 3	0,3 1*	0,3 1*	0,1 6*	1,0 0					
12. Company form of auditor (0 = private, 1 = company)	0,0 0	- 0,0 1	- 0,0 7	0,0 7	0,0 7	- 0,1 2	0,0 1	0,0 8	0,2 8*	- 0,0 5	0,1 0	1,0 0				
13. Age of auditor	- 0,0 6	- 0,0 3	0,0 4	- 0,0 6	- 0,1 2	0,2 7*	0,0 5	0,0 8	0,0 7	0,1 7*	- 0,1 0	- 0,2 1*	1,0 0			
14. Age of CPA exam	0,0 1	0,0 5	0,0 8	- 0,0 1	- 0,1 0	0,2 2*	0,0 6	0,1 8*	0,1 2	0,2 5*	- 0,0 5	- 0,1 5*	0,7 3*	1,0 0		
15. Number of annual engagements, logarithm	- 0,0 6	- 0,0 4	- 0,0 3	- 0,0 8	- 0,0 2	0,1 7*	0,0 8	0,4 1*	0,4 8*	0,1 3*	0,0 6	0,1 4*	0,2 6*	0,3 0*	1,0 0	
16. Number of annual hours in audit work	0,0 2	0,0 2	0,0 2	- 0,0 4	0,0 5	0,1 4*	0,1 0	0,4 4*	0,5 6*	0,1 6*	0,2 1*	0,1 5*	0,1 9*	0,2 8*	0,7 7*	1, 00

Note:

* = 2-tailed probability less than 5%

Appendix 3. Regression model for compliance (%) with all standards (dependent variable) for small clients (N=264).

Independent variable	Coefficient	t statistic	p-value#
Constant	45,534	2,026	0,044
Unearned annual income (Euro), logarithm	-0,017	-0,052	0,959
Total annual income (Euro), logarithm	3,140	1,841	0,067
Big client turnover (thousands of Euro), logarithm	-0,675	-0,520	0,604
Full-time auditor (0 = part-time, 1 = full-time)	5,244	1,573	0,117
Gender of auditor (0 = female, 1 = male)	1,921	0,627	0,531
CPA exam of auditor (0 = HTM, 1 = KHT)	-1,613	-0,464	0,643
Company form of auditor (0 = private, 1 = company)	-0,081	-0,020	0,984
Age of auditor	0,010	0,040	0,968
Age of CPA exam	-0,405	-1,903	0,058
Number of annual engagements, logarithm	1,670	0,799	0,425
Number of annual hours in audit work	0,002	0,418	0,677
Coefficient of determination (R-Square) (adjusted)	0,071	(0,030)	
F statistic (significance)	1,746	(0,064)	

Note:

= 2-tailed probability