Audit team characteristics matter: how groups of individuals determine audit quality

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SUMMARY: Despite it has been widely recognized that the way audit teams are structured and function plays a crucial role in shaping the level of quality of the audit service delivered (PCAOB, 2013; Francis, 2011), at the best of our knowledge no empirical study has so far investigated this.
By linking audit, management accounting and psychological literature we are able to integrate different theoretical perspectives and consider how social dynamics, reciprocal controls and group mechanisms inside audit teams influence audit quality.
Using private data on group and cognitive audit team structures provided by two of the Big4 audit firms operating in Italy over the period 2006-2009, we document that group structures within audit teams (in terms of different mix of work assigned to juniors, managers and partners) influence audit quality and that the way this structure affects audit quality changes over the length of the engagement. We also show that cognitive structures play a determinant role in shaping audit quality: common educational backgrounds and gender prevalence inside a team respectively decrease/increase audit quality.
As we document that structuring audit teams in a specific way might lead to higher audit quality, our study has managerial and regulatory implications. First of all, our evidence should be of interest for audit firms as it suggests some strategies in order the enhance the quality of the work done by their teams. Secondly, regulators around the world may consider to implement specific rules aimed at assuring that the best interactions among groups of individuals take place in audit teams.

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INTRODUCTION

A long line of research contributions over a decade has shown that individual auditors have an effect on the level of audit quality. The conclusions achieved by investigating the identity and characteristics of auditing personnel are summarized in a relevant paper reviewing the literature in audit quality: "Audits are of higher quality [at the input level] when the people implementing audit tests are competent and independent […] and make good decisions regarding the specific tests to be implemented and appropriately evaluate the evidence from these tests in leading to the audit report" (Francis, 2011: 126).

However, individual auditors do not work in isolation and are affected by their interaction within the audit teams in which they operate. Despite this fact, we know very little about the effect that audit teams have on audit quality. This study investigates whether and how audit quality varies across auditors' teams. Our work represents a response to the recent claim from regulators that considering audit team characteristics as determinants of the audit quality is particularly important: "Based on more than ten years of oversight, the Board knows that, even within a single firm and notwithstanding firm-wide or network-wide quality control systems, the quality of individual audit engagements varies. PCAOB inspectors have observed a wide variation in the quality of auditing by many engagement teams" (PCAOB, 2013: 6).

In particular, this paper aims to examine the impact that group and cognitive structures of audit teams have on audit quality[1]. These elements are relevant because the group structure - in terms of the weight of work assigned to seniors, managers and juniors - will affect the amount of time spent, respectively, on managing the relationships with the clients, managing the team and

[1] To develop our argument we are consistent with psychological literature that assumes that teams are composed not simply of individuals, but also of groups of individuals that share similar characteristics and previous experiences (De Vaan, Vedres, and Stark, 2014).

executing the auditing tasks, and this relative weight may have an impact on the level of audit quality (Maister, 1982). Moreover, if the teams are cognitively close because they are made up of groups of individuals that have gone through a similar training process and education experience they will be characterized by a smoother communication among the members of the groups (De Vaan, Vedres and Stark, 2014), and this smoothness may produce beneficial effects on the level of audit quality.

Our paper differs from existing contributions in at least two aspects. From a theoretical point of view, an important distinctive element of our contribution is that it leverages on different perspectives, and our hypotheses are developed by considering arguments and findings rooted in the psychological and management accounting literatures. From an empirical point of view, a unique feature of our study is that we complement the use of public data with the investigation of private ones: in fact, data on engagement hours and the identity of the leading auditors (i.e. partners and managers) involved in the specific engagement are proprietary data, and are accessible for our study because they have been provided to us by two of the Big 4 accounting firms operating in Italy. Moreover, the data concerning the signing partner identity are available for our analysis, given that this information is public in the Italian setting.

These distinct elements give us the opportunity to extend the conclusions of prior literature and to investigate team characteristics, given that the lack of public data on auditing teams has lead previous contributions to neglect team effects on audit quality. In particular, our investigation allows us to conclude, first, that greater allocation of audit hours to leading auditors might not be necessarily beneficial to audit quality, as one might instead expect. Second, we also conclude that allocating higher audit hours to junior levels during the first years of an audit engagement might result in higher audit quality, probably as this would result in more detailed and specific audit tests that would help the auditor getting familiar with the accounting and internal control systems of the new client. Third, we find that distant cognitive structures of the groups that make up teams

improve audit quality; and, finally, that audit teams with a higher percentage of female leading auditors are associated, on average, with higher audit quality.

As a whole, our findings suggest useful insights for practice. On the one hand, our study has managerial implications because it indicates how to allocate the time between team members across the various levels of the team and along the life cycle of the engagement. In addition, it maintains that audit teams would benefit from the presence of members with different backgrounds and genders. On the other hand, while so far audit regulations around the world have mainly indicated the characteristics that the single auditors should have in order to guarantee certain standards of audit quality to operate in the industry (e.g. CPA qualification, educational background etc.), in line with the recent claims by PCAOB, our work claims that future regulatory actions should monitor also the structure and the mix of characteristics of the audit team, as a crucial means to enhance audit quality.

Our work is structured as follows. The next two sections present literature review and hypotheses development. Then, we illustrate the Italian auditing setting. This is followed by the methodology used to test our hypotheses and the sample and data analyzed in our study. Empirical results are then described in the following section and we finally close the study pointing out our conclusions and limitations.

LITERATURE REVIEW

Auditing firms are professional service organizations that organize their activities around teams (Maister, 1982). This is because the complex tasks that the audit work implies needs the use of different competencies and perspectives beyond those possessed by a single individual (Ditillo, 2004; 2012). Therefore, individuals are integrated in teams to carry out their activities, and the way in which they are combined affects the level of performance that the team is able to achieve. This is a widespread conclusion that has been reached by many contributions in various fields.

More specifically, in psychology, prior research suggests that group characteristics and functioning matter in generating a certain level of outcome in team work. For example, Andrews (1979) suggests that group composition is a crucial factor in the effectiveness of research teams and in some aspects of the group process, such as how the group approaches solving problems, and this conclusion has been confirmed by succeeding studies (Campion, Papper and Medsker, 1996; Collins and Parker, 2010; Shaw, Zhu, Duffy and Scott, 2011; Rapp, Bachrach, Rapp and Mullins, 2014). Hackman and Morris (1975) highlight that group performance is reduced due to processes issues, deriving from errors in task-performance strategies, and coordination problems, emerging from the poor integration of group members' efforts. However, these processes and coordination problems decrease when group members are characterized by common frames of reference, which lead the team to operate more efficiently, because interaction is simplified and interpretations are less problematic, thus increasing the quality of the outcomes generated by the team (Ford, 1996).

Also in management accounting, the team has been considered as a critical dimension in the management of auditing firms, because it is within teams that the clan form of control takes is in action (Ouchi,1979; 1980; and Kirsch, Ko and Haney, 2014), and team's characteristics determine how this form of control operates. Clan control encourages staff to work towards the goals of the firm and allows to establish an appropriate balance between the development of trust relationships and the activation of monitoring relationships. In fact, a high level of interaction between partners, managers and junior auditors allows a substantial informal exchange of information that encourages trust and minimizes the risk of inaccurate or unfair assessments transfer. In this way, the quality-threatening behaviours that have been object of analysis in the management accounting field tend to be prevented, with positive effects on the level of audit quality achieved (Otley and Pierce, 1996; Pierce and Sweeney, 2004; Pierce and Sweeney, 2005).

In auditing, the literature has never directly addressed the impact of team characteristics on audit quality, but to our knowledge it has achieved some conclusions that can be indirectly related to teams. On the one hand, the scarce audit archival research that used disaggregated engagement

data has not investigated audit quality at team level, but has so far focused on different elements of the audit engagement. For example, Shelleman and Knechel (2010) study how auditors adjust audit fees or audit effort when there are signs of earnings management (i.e. increased levels of signed short-term accruals), whereas Knechel et al. (2009) proposed an alternative model compared to others already developed in previous literature (O'Keefe et al. 1994; Hackenbrack and Knechel 1997; Dopuch et al. 2003) to evaluate the efficiency of the different audit engagements. Moreover, Dowling (2009) focused on the factors influencing whether auditors use audit support systems appropriately, whereas Carpenter (2007) analysed the impact of audit team brainstorming on the number of quality fraud ideas; finally, Peecher, Piercey, Rich and Tubbs (2010) investigate the effects of supervisors' intervention on audit team judgements. On the other hand, auditing contributors have analysed the impact of team on audit quality by considering individual auditor characteristics, with the implicit assumption that the quality of the audit being undertaken by a team depends on the sum of the skills and personality of individuals (Nelson and Tan, 2005; Gul, Wu and Yang, 2013). Following these arguments, also practitioners have been more and more interested in this topic and the PCAOB is currently working on a project on quality auditor indicators, asking to disclose the leading partner identity. This identity is already public in various settings, but not in the US. Gul et al. (2013) show that signing auditors affect audit quality and this can be partially due to their characteristics. Similar results are recently obtained by Sundgren and Svanstrom (2014), Chen et al. (2010), and Zerni (2012), Chin and Chi (2009).

Drawing from these literatures, in the present research, we want to address the relevance of team characteristics on audit quality more directly. First, we explore the relative mix of work assigned to juniors, managers, and seniors for each engagement as the way in which the service is delivered depends on this mix (Maister, 1982). Second, given that the diversity/similarity of the cognitive structures of teams are relevant to their performance (Ford, 1996; De Vaan, Vedres and Stark, 2014), we also explore leading audit team members' cognitive similarity in terms of attendance of the same university. Third we focus on the gender of the audit team leading actors.

While the psychology (e.g. Croson and Gneezy 2009) as well as the audit (e.g. Gold et al., 2009) literatures show that gender-based differences can affect the quality of the work done by the single auditor and that there is a relation between signing partner gender and audit quality (Ittonen et. al., 2013; Hardies et al., 2014), in our research we go further by considering the impact that gender mix has on the quality of the work done at the team level.

HYPOTHESES DEVELOPMENT

As suggested in the previous section, various contributors in psychology and management accounting have clarified that different characteristics of audit teams as well as their control mechanisms matter in terms of the final performance they are able to achieve and, ultimately, of audit quality. For example, Maister (1982), by taking into consideration professional service firms in which he includes also auditing firms, suggests that the way in which the service of these firms is delivered depends on the relative mix of work assigned to juniors, managers, and seniors. This can be explained with reference to many aspects. First, the project nature of audit work means that there are basically three major activities in the delivery of professional services (client relations, project management, and the performance of the detailed professional tasks), and these activities, even if not in a rigid fashion, are allocated to the different levels of the organization: partners are responsible for client relations; managers, for the day-to-day supervision and coordination of projects; and juniors, for the many technical tasks necessary to complete the work (Maister, 1982). As a consequence a different distribution of hours among these different levels implies a relative more focus on one or the other activity, with potential consequences on audit quality. Second, the higher presence of partners and managers in the work of the team has strong implications on the team dynamics. In fact, on the one hand, it has been argued that leadership behaviour is expected to be an important influence on individual auditors' behaviour. This is because the presence of partners and managers that decide to provide immediate advices and comments on the action of subordinates represents the primary and most reliable source of feedback regarding what constitutes

good performance and may lead to an increase in audit quality (Otley and Pierce, 1996). On the other hand, it has also been suggested that partners play an important role in mentoring individual auditors, and higher level of their presence in team work is expected to increase the subordinates' opportunities for information exchange and knowledge acquisition unavailable through usual channels and, in this way, increase the likelihood of increased audit quality (Allen et al., 2004; Hall and Smith, 2009). Moreover, some other contributors have suggested that clan control and socialization controls operating at the team level contribute to solving the cost-quality conflict typical of audit firms (Pierce and Sweeney, 2004) and to maintaining audit quality. In fact, the higher presence of partners and managers in team work will affect these forms of control and in turn audit quality, because under clan control individual auditors will benefit of a continuous performance evaluation undertaken through a 'continuous process of subtle signals from old-time members' (Macinthosh, 1985, p. 179). Moreover, more frequent face-to-face interaction with partners and managers would be used to 'probe subordinates to explain any unforeseen changes in their activity and to offer suggested action plans', as well as to challenge and debate data, assumptions and, more in general, action (Pierce and Sweeney, 2005), thus potentially increasing the total level of audit quality. Therefore, we expect that:

H_1: There is a positive relation between the percentage of partners and managers hours in the audit team and audit quality.

A part from group characteristics, the cognitive diversity/similarity and the related communication between the members of teams are relevant to their functioning and, in turn, performance (Ford, 1996). In particular, communication determines socialization practices that contribute to generating shared labels and interpretations for events that coordinate and homogenize the collective sensemaking processes of teams. Members that have more similar knowledge and that have shared preceding socialization experiences from similar groups tend to operate more efficiently because communications and interpretations are simplified, thus increasing the time available dedicated to problem solving, and more effectively because the risk of misunderstanding

is minimized. One important source of knowledge and a relevant socialization experience in the professional development of team members is certainly represented by the university education. Therefore, two or more members of the team that have studied in the same university tend to interact more efficiently and effectively because of their common background, increasing in this way the likelihood of audit quality. Therefore we expect that:

H_2: There is a positive relation between the number of partners and managers in the audit team that have studied in the same university and audit quality.

At the best of our knowledge, previous studies have been focusing on gender with reference to the individual auditors, neglecting the possible reinforcing effect on perceptions, attitudes and behaviours deriving from the interaction between similar individuals in the same team (Griffin, 1983; Woodman, Sawyer and Griffin, 1993). Behavioural differences between genders have been extensively documented in the literature. Psychological and behavioural economics literature show (e.g., Byrnes et al. 1999; Schmitt et al. 2008; Croson and Gneezy 2009) gender-based differences in cognitive information processing, conservatism, diligence, and risk tolerance. Also audit literature explore gender issues, traditionally using experiments (Chung and Monroe, 2001, O'Donnell and Johnson, 2001, and Gold et al., 2009). Overall results show that auditor gender affects audit judgment and that female auditors are more accurate and effective in information processing and less prone to be influenced by client unverified explanations. Also efficiency in audit judgement is positive related to female auditors.

Moreover some archival studies deal with this issue. Ittonen et. al (2013), on the basis of a sample of Finnish and Swedish listed companies document that female partners are associated with higher accruals. Similar results are obtained by Niskanen at al. (2011) on a sample of Finnish private companies. Using going concern opinions (GCOs) as an indicator of audit quality, Hardies et al. (2014) document for a sample of private Belgian companies female auditors are more likely to issue GCOs than male auditors. Authors conclude that their findings indicate higher audit quality by

female auditors. Contrarily, using a large sample of Chinese data, Gul et al. (2013) do not find that partner gender matters in explaining audit quality.

Differently from previous research, we examine gender mix at the audit team level. In this way we are able to consider the abovementioned possible reinforcing effect on perceptions, attitudes and behaviours deriving from the interaction between similar individuals working in the same team and to test whether it determines any effect on the quality of audit team work.

In particular, on the basis of the previous literature we state the following hypothesis:

H_3: There is a positive relation between the percentage of women in the audit team and audit quality

ITALIAN AUDIT SETTING

Italy is a civil law country that is generally considered to have weaker legal enforcement and weaker investor protection than typical Anglo-Saxon countries (Choi and Wong, 2007). Audit market is relatively small in comparison with countries like the United States and United Kingdom (Gietzmann and Sen, 2002).

From an audit perspective, the most well known characteristics of this setting, where previous audit research papers were rooted (Cameran et al., 2014a; Cameran et al., 2014b), is the mandatory rotation rule. In fact, the mandatory rotation of audit firm of listed companies has been required since 1975. Moreover, starting from 2006 also partners have to be rotated. In performing their tasks, Italian audit firms need to apply domestic auditing standards (CNDC-CNRPC 2007), which strictly follow the International Standards on Auditing (ISA). To preserve auditor independence, Italian audit firms are required to shy away from providing non-audit services to listed client firms. Cameran (2007) reports that auditing services account for about 90% of revenues of Big audit firms in Italy. Therefore, non-audit services provided to non-auditees generate a very small share of audit firms' proceeds. Also considering the fact that more than 90% of listed Italian

companies are audited by Big audit firms, we can assert that financial reporting represents the primary concern of audit firms in charge of auditing Italian listed companies' financial statements.

The Italian SEC (Consob) is required by law to monitor activities of audit firms that audit listed companies in order to examine their level of independence and technology for providing adequate audits. Consequently, at least once in every three years, Consob verifies that the threshold of degree of auditor independence is maintained and that the audit firm and its employees are endowed with the required minimum technical qualifications. In addition, Consob carries out periodic controls on the quality of the auditing activity performed by audit firms. Anomalies in the audit activities are subject to stiff penalties. For example, we calculate that in the period between 1992 and 2004, suspensions of audit partners sanctioned by Consob are 1.42% of the population of listed companies (Cameran et al., 2014). This rate is very similar to the 1.49% calculated with reference to the US market (Francis, 2004), suggesting that the risk of investigation and disciplinary measures by Consob is significant. Furthermore, Wingate (1997) reports that—while the US shows the highest audit litigation score— among European countries, only the UK is considered to be riskier to the auditors than Italy[2]. An example of anecdotal evidence regarding the Italian litigation environment is that of the well-known Parmalat scandal (similar to the Enron and Worldcom cases), which ended with the removal of Parmalat's auditor (Italaudit SpA, previously Grant Thornton SpA) from the audit firms list (Melis 2005). Furthermore, after the scandal, the Italian stock market reacted strongly: Parmalat stock price collapsed and the related trading activity was suspended for several days (Velucchi 2009)[3].

METHODOLOGY

In order to test our hypotheses we estimate the following model:

[2] In particular, Italy is assigned a litigation risk score equal to 6.22, while Nordic European countries (Denmark, Finland, Netherlands, and Norway) show an average score of 5.22, and Germanic countries (Germany and Austria) have an average score of 4.91. A higher score is assigned to Canada (8.07), UK (10), the US (15) (Wingate 1997).

[3] A loss of 70% is recorded by the food industry stocks from mid- to late December of 2003, i.e., following the Parmalat scandal (Velucchi 2009).

$$AQ_{it} = \alpha + \beta_1 \mathbf{Hpm}_{it} + \beta_2 \mathbf{Hpm*Ften}_{it} + \beta_3 \mathbf{Same\_uni}_{it} + \beta_4 \mathbf{Women}_{it} + \beta_5 Pten_{it} + \beta_6 Ften_{it} + \beta_7 Loc\_uni_{it} + \beta_8 Ln\_fees_{it} + \beta_9 Aud\_firm_{it} + \beta_{10} Nsub_{it} + \beta_{11} Lev_{it} + \beta_{12} Size_{it} + \beta_{13} Cfo_{it} + \beta_{14} Growth_{it} + \beta_{15} Loss_{it} + \beta_{16} Roa_{it} + \beta_i IND_t + \beta_j YEAR_i + \varepsilon_{it}$$

Where audit quality (*AQ)* is measured using two different proxies of earnings quality: the absolute value of abnormal working capital accruals (*AWCA)* and the propensity of the client company of meeting or beating analyst consensus forecast (*MB).*

Consistent with prior literature, we assume that high quality audit would limit earnings management practices and therefore contribute to increase client's earnings quality[4].

AWCA is measured following DeFond and Park (2001). In particular:

$$AWCA_{i,t} = WC_{i,t} - WC_{i,t-1} \frac{S_{i,t}}{S_{i,t-1}} \quad (1)$$

where $WC_{i,t}$ is the actual level of working capital observed in year *t* for firm *i*, scaled by total assets. In particular:

$$WC_t = (Current\ assets_t - Cash_t - Short\ term\ investments_t) - (Current\ liabilities_t - Short\ term\ debt_t) \quad (2)$$

The second term of the first equation ($WC_{t-1} * S_t/S_{t-1}$) represents the predicted value of working capital, which is prior year's working capital adjusted for the change in sales. As pointed out by Wysocki (2004), this measure of abnormal accruals is particularly suitable for this sample, because the Italian stock market is relatively young and small.

We then use a second proxy for earnings quality, consistent with Davis et al. (2009). Specifically, we create a dummy *MB* which takes the value of 1 if the reported earnings of the client firm meet or beat the analysts' consensus, but the pre-managed earnings (i.e. reported earnings less abnormal accruals) miss the mean analysts forecast.

In order to test Hp (1), we include variable *Hpm,* which measures the percentage of audit hours spent on a specific audit engagement by the senior levels (partner and managers) compared to

[4] Based on previous literature we consider the quality of reported earnings as the results of a negotiations process in which the auditors influence clients (Antle and Nalebuff, 1991), and so observed outcomes, such as earnings quality, are therefore used as as proxies for audit quality (e.g., Becker et al., 1998; Francis et al., 2013; Francis and Michas, 2012).

the rest of the audit team. Given that higher amounts of work carried out by more senior levels should bring in more immediate and effective feedbacks on the activities performed (Otley and Pierce, 2996), immediate advice and comments on the tests to be performed and should facilitate information exchange and knowledge acquisition (Allen et al. 2004; Hall and Smith, 2009) we expect this variable to be positively associated with audit quality: therefore we expect β_1 to be negative (i.e. higher audit quality leads to lower discretionary accruals).

As suggested by Maister (1982) the relative mix of work assigned to juniors, managers and seniors might also affect the focus given to client relations, project management and detailed tasks activities, with a consequent impact on the quality of the audit performed. The different distribution of hours among different levels and the consequent different mix of activities performed might have different impact on audit quality in different periods of the audit engagement. For example, client relations might have a more crucial role at the beginning of a new engagement but at the same time more detailed tests might be needed in the first years of tenure as the auditor still have to get familiar with the accounting systems and the internal control systems of the client. For this reason, we include the interaction variable *Hpm*Ften* and check whether the impact of hours mix on audit quality changes along years of tenure.

Our second hypothesis (HP2) is tested through variable *Same_uni.* This variable measures the percentage for each team of partners and managers sharing a common educational background. In particular, we collected information directly from social networks (i.e. Linkedin, Facebook) and, for those cases for which we were not able to find information, we directly contacted the auditors via email. This variables is used as a proxy for the level of similarity of domain relevant knowledge and we expect it to be positively (negatively) related to audit quality (abnormal accruals): teams that share similar domain relevant knowledge and have common preceding socialization experiences tend to operate more effectively and efficiently as the can leverage on simplified communications and interpretation (Ford, 1996).

Finally, our third hypothesis is tested by adding variable *Women* in the model specified. *Women* measures the percentage of female partners and managers in the team: given that female auditors are found to be more accurate, more effective in information processing and more independent than male auditors, we expect this variable to be negatively correlated with audit quality (Hp3).

We include a set of control variables to control for those auditor and firm characteristics that could affect audit quality.

Specifically, variables *pten* and *ften* control for audit partner and audit firm tenure respectively. Different papers have tried to understand whether long auditor engagements are associated with higher or lower audit quality and evidence is still not conclusive (Myers et al., 2003; Johnson et al, 2002; Carey and Simnett, 2006; Cameran et al. 2014). Variable *Loc_uni* is a dummy equal to 1 if the audit partner attended the university in the North of Italy, the most economically developed part of Italy, significantly different from the South (Eckhaus, 1961).

We then control for the audit fees paid for the specific engagement (*Ln_fees)*[5]. As higher audit fees might suggest higher economic bonding (and therefore lower independence) or higher audit effort, we do not have clear expectations about the sign of the coefficient of this variable[6]. The data used in this paper are provided to us by two Big Audit firms in Italy. Given that every Big audit firm has its own policies and procedures (Francis et al. 2014), we include a dummy variable *Aud_firm* taking the value of 1 if the engagement is carried out by Audit firm "A", 0 otherwise.

With reference to client-firm specific characteristics potentially influencing audit quality, we control for audit client's complexity (proxied by the number of subsidiaries – *Nsub)* and for the leverage (*Lev).* Given that abnormal accruals are found to be negatively associated with the reporting firm's size (Johnson et al. 2002; Cameran et al. 2014) we include variable *Size,* measured

[5] Consistent with previous literature, we take the natural logarithm of audit fees.

[6] Prior literature so far has provided incosistent evidence on the relationship between audit fees and audit quality. Some papers have in fact suggested a positive relation between audit fees and the quality of the service provided (Larcker and Richardson, 2004 and Srinidhi and Gul, 2007) while others find a negative (Antle et al., 2006) or even no relation (Ashbaugh et al., 2003 and Chung and Kallapur 2003).

as the natural logarithm of firm's sales. *Loss,* which is a dummy variable equal to 1 if the firm incurred in loss in year t-1 is included to control for management incentive's to manipulate earnings; variable *Growth* controls for the impact of growth on accruals (Carey and Simnett, 2006) while the level of operating cash flows (*Cfo*) and *Roa* control for client firm's performance. Finally, all models include industry and year fixed effects.

SAMPLE AND DATA

The sample is made up of 187[7] engagements carried out by two of the Big 4 in Italy, over the period 2006-2009, for which the audit firms provided us with data on audit hours and of the composition of the audit team specifically allocated to each engagement.

In particular, for each firm/engagement-year observation, we obtained the allocation of audit hours among audit partners, managers, seniors and staff; the identity (i.e. name and surname) of the audit partner (which is also publicly available according to the Italian Regulation) and of the audit managers. For these, we collected information on gender (male/female) and on the educational background (university and degree attended).

The audit firms also provided us with data on the actual audit fees for each engagement[8].

We then downloaded all financial information from Compustat Global and I/B/E/S to compute our measures of Earnings Quality and firm-specific characteristics included as control variables in our models.

The industry composition is as follows: 36 percent of companies are in "manufacturing activities," 18 percent are in the "information and communications" sector, 12 percent in "utilities" and the rest of the sample is evenly distributed across other industry sectors[9].

Financial data were downloaded from Compustat Global.

[7] We were able to download data on *Mb* for only 155 engagements.
[8] Publicly-disclosed audit fee data has been required since 2007 but we find some evidence that reported fees in Italy may be inaccurate (Cameran et al. 2014).
[9] We use the 2 digit naics classification system to identify sectors.

Variable definitions are presented in Table 1, and descriptive statistics are reported in Table 2.

[Insert Tables 1 and 2 here]

The median value of absolute abnormal working capital accruals is 0.038 percent of sales. On average, 10.7% of the sample just beet the analyst consensus. 28.6% of total audit hours are allocated to managers and partners compared to the rest of the team while on average, the percentage of audit partners and managers who have common educational background (have attended the same university) is 22%. Finally, in each audit team, approximately 17% of the partner and managers are women. The median partner tenure in the sample is 3 years, while the median audit firm tenure is slightly longer (5 years). Approximately 50% of the partners has attended the university in the North of Italy. Median audit fees are 216,925 € while median sales reported by the clients are 2.10 billions.

The median firm in the sample has approximately 12 subsidiaries and 34% of the firm-years in the sample had an operating loss in year t-1. The median leverage is 0.68 while the median firm shows a level of cash flows equal to 0.035, growth of 0.014 and Roa of 0.015. Finally, we note that the sample is evenly distributed between the two audit firms as variable *Aud_firm* presents a mean of 0.465.

Table 3 reports the correlation matrix.

[Insert Table 3]

It is interesting to note that the level of *AWCA* is positively correlated with *Hpm,* suggesting that the higher the percentage of audit hours spent by top levels in an audit team (i.e. managers and partners) the higher the level of abnormal working capital accruals, which stands contrary to our expectation. Moreover, we also notice that higher percentages of female partners and managers are associated with lower *AWCA,* which is consistent with our Hp3.

Variable *Mb* is not significantly correlated with our variables of interest. With respect to control variables, we notice that *AWCA* is positively associated with *Loss* and *Loc_uni* and negatively correlated with client's size, operating cash flow and *Roa,* as one would expect. *Mb* shows a positive correlation with the number of subsidiary, suggesting higher incidence of *Mb* in more complex environments and with client's size, perhaps as a response to market pressures. Finally, *Mb* is negatively correlated with variable *Loss* and positively associated with *Roa.*

MULTIVARIATE RESULTS

Table 4 reports the results for Model (1) and Model (2).

[Insert Tables 4 around here]

Both models are estimated with year and industry fixed effects to control for systematic temporal and industry variations. The reported t-statistics are based on heteroskedasticity-robust standard errors and reflect two-tail probabilities. There is no evidence of multicollinarity threats as VIF's are all under 4, well below the threshold of 10 suggested by Kennedy (2008).

The first column of Table 4 shows variable coefficients and relative significance when *AWCA* is used as a measure of Audit Quality. We can first notice that variable *Hpm* is positively associated with *AWCA* (coeff. +0.632; t.stat=2.26), suggesting that a higher percentage of audit hours allocated to "senior levels" (partners and managers) are, on average, associated with lower levels of audit quality. While this results seems at a first glance quite surprising, this can be explained by considering that a higher amount of hours associated to partners and managers implicitly means, in relative terms, less hours assigned to juniors, who currently do the technical task of the auditing job, with potential consequences on audit quality. In fact, while it is obvious that the various activities are not assigned in a rigid way to the various roles, and that juniors are increasingly given 'managers' tasks to perform (with the objective of testing their competencies and worthiness to be promoted to the manager role), and managers are gradually given tasks related to the development

of client-relations skills (to prepare to promotion to the senior level), it is also true that these roles are characterized by the primary execution of a certain type of activity, and that less work assigned to juniors means less time dedicated to technical tasks to audit accounts (Maister, 1982). It is interesting to notice that this relationship seems to reverse along the engagement period. The interaction variable *Hpm*Ften* (where ften measures the number of years the same audit firm audits a specific client – i.e. firm tenure) is negative and significant (coeff. -0.097; t.stat=2.34). This result suggests that it might be beneficial to allocate a higher amount of hours to partner and managers towards the end of the engagement. Said it differently, a greater amount of audit hours spent by more junior levels (senior and staff) during the first years of tenure lead to higher audit quality. This might be explained considering that, in the initial years of a new engagement, the auditor is not familiar with the accounting and internal control systems and procedures of the client and might therefore miss material errors and mistakes. For this reason, allocating more hours to detailed audit tests in the first years of tenure might limit this lack of knowledge and might therefore be beneficial for audit quality.

The coefficient of variable *Same_uni* is also positive significant (coeff. 0.051; t.stat=2.15), showing, contrary to our expectations, that a more diversity of domain-relevant knowledge among the members of the teams leads these members to confront dissonant languages, where even the same term might have different meanings, with the potential to shake up existing codes, categories and frameworks (De Vaan, Vedres, and Stark, 2014), and thus identify more problematic accounts than a higher cognitive similarity would allow.

Finally, results suggest that higher percentages of women in the audit team lead to higher audit quality (coefficient of variable *Women*=-0.107; t.stat=3.17). This is consistent with our third hypothesis.

Looking at control variables, we notice that abnormal working capital accruals are negatively associated with firm's size, consistently with the literature on determinants of earnings quality (Johnson et al. 2002). The coefficients of audit fees and firm tenure are both positive and

significant, suggesting that higher economic and social bonding are associated with lower audit quality.

Model 2 of table 4 reports the marginal effects of the logistic regression when variable *Mb* is used as a dependent variable. Results are consistent with the ones discussed above. In particular, variable *Hpm* is positive and significant (coeff. 0.017; z-stat=2.46) while the interaction variable with *ften* shows an opposite sign (coeff. -0.003; z-stat=-1.99). The percentage of partner and managers that in a specific audit team have attended the same university is, as before, positively associated with earnings manipulation (marginal effect of variable *Same_uni* = 0.003; z-stat=2.35) while the opposite is true for the percentage of female partners and managers (marginal effect of variable *Women*=-0.005; z-stat=2.97).

With reference to control variables, as before economic (*Ln_fees*) and time (*ften*) bonding are positive and significant suggesting lower levels of audit quality. Consistent with the expectations, variables *Growth* and *Cfo* are negatively associated with earnings management. Variable *Loss* also shows a negative and significant coefficient, suggesting that companies might hide losses through earnings manipulation. Finally, somehow surprisingly, complexity (*Nsub*) and leverage (*Lev*) are negatively associated with *MB* (therefore suggesting lower levels of manipulations in more complex and high leveraged environments) while *Loc_uni* is also negatively related to *Mb.*

Sensitivity analyses

We conduct a bank of sensitivity analyses to assess the robustness of our results.

First of all, we control for the quality of the corporate governance system in a specific company (Dechow et al., 1996 and Klein, 2002). In order to do so, we hand collect data on CEO duality (variable *Ceo_dual* = 1 if the CEO is also the President of the Board of Directors) and of Board members independence (variable *B_Ind*=percentage of Board members who are independent) and run the extended models shown in Table 5.

[Insert Tables 5 here]

As it can be noticed by looking at Table 5, all results are confirmed. The percentage of audit hours performed by partners and managers is positively correlated with earnings manipulation while this relation is reversed as time passes (interaction variable *Hpm*Ften* is negative in both Models (1) and (2)). Common educational background is again associated with lower levels of audit quality (*Same_uni* is positively associated with *AWCA* and *Mb*) and higher percentages of women in the audit team are positively associated with audit quality. Control variables show a very similar behavior as in Table 4.

We then control for industry leadership, as it has been demonstrated that the level of audit quality delivered might be different (higher) for auditors who are specialist in a specific industry (Craswell et al., 1995; Francis 2004). We therefore compute, for each year and industry, industry specialization by creating a variable *Aud_spec*=1 if the specific auditor has the highest market share in the sample, 0 otherwise. All our results are confirmed.

Given the peculiarity of the Italian market, which is characterized by mandatory auditor rotations both at the firm (every nine years) and at the partner (every six years) level, we include variables *fmanrot* and *pmanrot* to control for mandatory changes of the audit firm/partner. All our results are again confirmed.

Previous literature has also demonstrated that audit quality is not consistent across all offices of a specific audit firm (Ferguson et al., 2003; Francis et al, 2005). Even if we believe this might be a lower concern in the Italian market (as the biggest offices of all the Big 4 audit firms in Italy are based in Milan or Rome, while the others can be considered small offices) we still rerun our models controlling for office levels. Our results are again confirmed.

Finally, we control for additional individual partner characteristics like gender and age and we get the same results.

CONCLUSIONS

Audit literature so far has mainly focused on how audit firm-level or individual-level characteristics may impact audit quality. Despite it has been widely recognized that the way audit teams are structured and function plays a crucial role in shaping the level of quality of the audit service delivered, (PCAOB, 2013; Francis, 2011), no empirical study has so far investigated this level, mainly due to a lack of data availability.

This paper tried to fill this gap by using private data on group and cognitive audit team structures provided by two of the Big4 audit firms operating in Italy on 187 engagements over the period 2006-2009.

By linking audit, management accounting and psychological literature we were able to integrate different theoretical perspectives and considered how social dynamics, reciprocal controls and group mechanisms inside audit teams influence audit quality. We document that group structures within audit teams (in terms of different mix of work assigned to juniors, managers and partners) influence audit quality and that the way this structure affects audit quality changes over the length of the engagement. We also show that cognitive structures play a determinant role in shaping audit quality: common educational backgrounds and gender prevalence inside a team respectively decrease/increase audit quality.

Our results show that above "auditor style"[10] (Francis et al. 2014) –i.e. audit firm identity- and also taking into consideration that audit quality is not consistent across all offices of a specific audit firm (see sensitivity analyses), audit team characteristics influence audit quality. In particular our findings suggest that it is possible to enhance the quality of the audit work, paying attention to the group structures and cognitive structures within the teams. This has different managerial and regulatory implications.

[10] That is "each Big 4 audit firm unique set of internal working rules that guide and standardize the auditor's application of auditing and accounting standards" (Francis et al. 2014: 606)

Previous literature (Vera-Muñoz et al., 2006) highlights that auditors are routinely assigned to different engagements that vary in terms of complexity and industry. This may be problematic not only because it may have a negative impact on the firm ability to capture knowledge for reuse and to minimize information overload, but also because the output of the work done by one team may be different in relation to the characteristics of the groups operating in the team. Our results document that structuring audit teams in a specific way might lead to higher audit quality. This should be taken into consideration by audit firms when planning the audit engagement, especially when defining audit teams. In particular, audit firms should allocate a relative higher amount of audit hours to junior levels at the beginning of a new engagement and increase the amount of activities to be performed at leading levels (partners and managers) as years of engagement passes. Then audit teams should be structured integrating different knowledge domains. This has also impact on the recruitment processes that has to draw for example from different universities. Moreover it is also important to maintain a relative higher percentage of women especially among leading levels. This means that shattering the CPA glass ceiling it is not only a question of social justice and discrimination in workplace, but also of audit quality. The efforts and costs incurred by audit firms to create equality of opportunity among genders may be reworded by a better reputation for the quality of the work done, that at the end of the day is the audit firms' priceless asset.

Our findings also indicate that regulators around the world should better monitor audit team structures and maybe implement specific rules aimed at assuring that the best interactions among groups of individuals take place in audit teams. Also after having controlled for audit partner characteristics (like gender and age, see above sensitivities analyses), our results show that there is a significant effect of the audit team characteristics.

We acknowledge that one main limitation of this study is the scarce number of observations from only one country: given that we are using private data it is unfortunately not possible at this stage to extend the dataset. Notice that the number of observations we consider in this paper is similar to the one used in audit published research that employ proprietary data (e.g. Shelleman and

Knechel, 2010 examine 119 audit engagement from a single audit firm and Knechel et al., 2009 run their models on 226 engagements). Moreover, the use of Big 4 data partially alleviate concerns that may arise from employing data from a single country as Big 4 have very well developed international networks and internal working rules that guide and standardize their activity at international level.

This is, however, the first attempt to empirically study the audit team level and its impact of audit quality: future research will help exploring audit team characteristics and interactions among group of individuals in audit firms, maybe using bigger and international samples. This requires the cooperation of practitioners (e.g. audit firms or regulators) as analyses like the one conducted in this paper are based on private data. In this respect, greater openness and cooperation from practitioners will definitely help moving beyond our current knowledge and understanding and ultimately improving audit quality (Francis, 2011).

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TABLE 1
Variable definitions

Variable	Definition
Dependent variables	
AWCA	Absolute Abnormal Working Capital Accruals (DeFond and Park, 2001) computed as $AWCA_t = WC_t – (WC_{t-1}/S_{t-1})*S_t$.
MB	Indicator variable (ID) = 1 if the firm meets or beats the mean analysts forecast using discretionary accruals, 0 otherwise. Specifically, we require that EPS > analyst consensus forecast and EPS – discretionary accruals < analyst consensus forecast (from I/B/E/S) for MB = 1.
Variables of interest	
Hpm	Sum of audit hours spent by partner and managers on a specific engagement, divided by the sum of audit hours spent by seniors and staff
Same_uni	The percentage of partner and managers in a specific team who have attended the same university.
Women	The percentage of female partners and managers in each audit team.
Control variables	
Pten	Number of years a specific partner has been auditing the same client.
Ften	Number of years a specific audit firm has been auditing the same client.
Loc_uni	A dummy variable equal to 1 if the partner has attended university in the North of Italy, 0 otherwise.
Ln_fees	The natural logarithm of audit fees paid to the incumbent auditor.
Aud_firm	A dummy variable equal to 1 if the audit firm is "A", 0 otherwise.
Nsub	The number of subsidiaries of the client.
Lev	(Long term debt + short term debt included in current liabilities) / Total Assets
Size	The natural logarithm of total sales.
Cfo	Operating Cash Flow scaled by initial total assets.
Growth	Change in sales divided by sales in year t-1.
Loss	A dummy variable equal to 1 if the client company incurred an accounting loss in year t-1, 0 otherwise
Roa	Ebit/Total Assets

TABLE 2
Descriptive statistics

Panel A: Descriptive statistics

Variable	Obs.	Mean	Std.	25%	Median	75%
Dependent variables						
AWCA	187	0,074	0,124	0,017	0,038	0,082
Mb	155	0,107	0,310	0,000	0,000	0,000
Variables of interest						
Hpm	187	0,286	0,104	0,222	0,264	0,332
Same_uni	187	0,218	0,371	0,000	0,000	0,500
Women	187	0,169	0,229	0,000	0,000	0,429
Control variables						
Pten	187	3,043	1,834	2,000	3,000	4,000
Ften	187	5,636	3,414	3,000	5,000	8,000
Loc_uni	187	0,474	0,362	0,000	0,500	0,667
Ln_fees	187	12,392	0,865	11,765	12,287	12,918
Aud_firm	187	0,465	0,500	0	0	1
Nsub	187	34,428	68,215	6,000	12,000	27,000
Lev	187	0,648	0,184	0,538	0,677	0,768
Size	187	19,873	17,383	18,591	19,535	21,017
Cfo	187	0,034	0,106	-0,014	0,035	0,088
Growth	187	0,054	0,357	-0,089	0,014	0,108
Loss	187	0,348	0,477	0,000	0,000	1,000
Roa	187	0,002	0,075	-0,025	0,015	0,039

Notes:
AWCA represents the absolute abnormal working capital accrual (DeFond & Park, 2001); ***Mb*** is an indicator variable (ID) = 1 if the firm meets or beats the mean analysts forecast using discretionary accruals, 0 otherwise. Specifically, we require that EPS > analyst consensus forecast and EPS – discretionary accruals < analyst consensus forecast for MB = 1; ***Hpm*** is the sum of audit hours spent by partner and managers on a specific engagement, divided by the sum of audit hours spent by seniors and staff; ***Same_uni*** represents the percentage of partner and managers in a specific team who have attended the same university; ***Women*** represents the percentage of female partners and managers in each audit team; ***Pten*** is the number of years a specific partner has been auditing the same client; ***Ften*** is the number of years a specific audit firm has been auditing the same client; ***Loc_uni*** is a dummy variable equal to 1 if the partner has attended university in the North of Italy, 0 otherwise; ***Ln_fees*** is the natural logarithm of audit fees paid to the incumbent auditor in Euro (€); ***Aud_firm*** is a dummy variable equal to 1 if the audit company is company "A", 0 otherwise; ***Nsub*** is the number of subsidiaries of the client; ***Lev*** is computed as (Long term debt + short term debt included in current liabilities)/Total Assets; ***Size*** is the natural logarithm of total sales; ***Cfo*** represents the operating Cash Flow scaled by initial total assets; ***Growth*** represents the ***c***hange in sales divided by sales in year t-1; ***Loss*** is a dummy variable equal to 1 if the client company incurred an accounting loss in year t-1, 0 otherwise ***Roa*** is computed as Ebit/Total Assets.

TABLE 3
Pearson's correlation coefficients

	AWCA	*Mb*	*Hpm*	*Same_uni*	*Women*	*Pten*	*Ften*	*Loc_uni*	*Ln_fees*	*Aud_firm*	*Nsub*	*Lev*	*Size*	*Cfo*	*Growth*	*Loss*	*Roa*
AWCA	1																
Mb	-0.055	1															
Hpm_ss	0.340*	-0.023	1														
Same_uni	0.071	0.108	0.043	1													
Women	-0.158*	-0.016	-0.033	0.180*	1												
Pten	-0.090	-0.103	0.010	-0.013	0.003	1											
Ften	-0.105	0.027	-0.080	-0.113	0.129	0.258*	1										
Loc_uni	0.281*	-0.085	0.200*	0.147*	0.061	-0.175*	-0.075	1									
Ln_fees	-0.141	0.111	0.044	-0.010	-0.000	0.047	0.165*	-0.210*	1								
Aud_firm	-0.084	-0.115	-0.412	-0.057	-0.079	0.019	-0.215*	-0.096	-0.114	1							
Nsub	-0.098	0.174*	0.028	0.054	-0.095	-0.022	0.031	-0.101	0.511*	0.083	1						
Lev	0.098	-0.007	0.114	0.023	0.041	-0.177*	-0.075	-0.069	0.278*	-0.000	0.226*	1					
Size	-0.346*	0.218*	-0.091	0.122	0.063	-0.018	0.070	-0.303*	0.753*	0.092	0.602*	0.221*	1				
Cfo	-0.228*	0.038	-0.209*	0.126	-0.029	0.111	0.033	-0.132	0.044	0.233*	0.132	-0.305*	0.197*	1			
Growth	-0.051	-0.046	-0.163*	0.068	-0.062	0.028	0.018	-0.080	0.025	0.068	0.013	-0.021	0.055	0.144*	1		
Loss	0.175*	-0.180*	0.118	-0.170*	-0.060	-0.091	0.038	0.029	-0.081	-0.096	-0.158*	0.268*	-0.249*	-0.483*	-0.022	1	
Roa	-0.302*	0.157*	-0.269*	0.137	0.055	0.201*	0.109	-0.232*	0.061	0.090	0.119	-0.505*	0.267*	0.599*	0.132	-0.709*	1

Notes:
Statistical significance at 5 percent level is denoted by *.
AWCA represents the absolute abnormal working capital accrual (DeFond & Park, 2001); ***Mb*** is an indicator variable (ID) = 1 if the firm meets or beats the mean analysts forecast using discretionary accruals, 0 otherwise. Specifically, we require that EPS > analyst consensus forecast and EPS – discretionary accruals < analyst consensus forecast for MB = 1; ***Hpm*** is the sum of audit hours spent by partner and managers on a specific engagement, divided by the sum of audit hours spent by seniors and staff; ***Same_uni*** represents the percentage of partner and managers in a specific team who have attended the same university; ***Women*** represents the percentage of female partners and managers in each audit team; ***Pten*** is the number of years a specific partner has been auditing the same client; ***Ften*** is the number of years a specific audit firm has been auditing the same client; ***Loc_uni*** is a dummy variable equal to 1 if the partner has attended university in the North of Italy, 0 otherwise; ***Ln_fees*** is the natural logarithm of audit fees paid to the incumbent auditor in Euro (€); ***Aud_firm*** is a dummy variable equal to 1 if the audit company is company "A", 0 otherwise; ***Nsub*** is the number of subsidiaries of the client; ***Lev*** is computed as (Long term debt + short term debt included in current liabilities)/Total Assets; ***Size*** is the natural logarithm of total sales; ***Cfo*** represents the operating Cash Flow scaled by initial total assets; ***Growth*** represents the ***c***hange in sales divided by sales in year t-1; ***Loss*** is a dummy variable equal to 1 if the client company incurred an accounting loss in year t-1, 0 otherwise ***Roa*** is computed as Ebit/Total Assets.

TABLE 4
The impact of audit team characteristics on earnings quality

	Expected sign	Model 1 *AWCA*	t-stat	Model 2 MB	z-stat
Variables of interests					
Hpm	?	0.632**	2.26	0.017**	2.46
*Hpm*Ften*	?	-0.097**	-2.34	-0.003**	-1.99
Same_uni	?	0.051**	2.15	0.003**	2.35
Women	-	-0.107***	-3.17	-0.005***	-2.97
Control Variables					
Pten	?	-0.004	-0.95	-0.000	-0.99
Ften	?	0.026**	2.32	0.001**	2.28
Loc_uni	?	0.034	1.34	-0.004**	-2.45
Ln_fees	?	0.072***	2.65	0.002**	2.13
Aud_firm	?	0.003	0.15	-0.113***	-3.00
Nsub	+	0.000	1.24	-0.000*	1.79
Lev	+	-0.006	-0.11	-0.007*	-1.70
Size	-	-0.053***	-3.23	0.000	0.18
Cfo	-	-0.143	-1.43	-0.016**	-2.27
Growth	?	-0.003	-0.12	-0.007**	-2.42
Loss	+	0.240	1.17	-0.007**	-1.98
Roa	-	0.137	0.54	-0.002	-0.17
Intercept		0.043	0.31	-	-2.07
Year fixed effects		Yes		Yes	
Industry fixed effects		Yes		Yes	
N		187		155	
Adjusted R^2		53.3%		50.5%	

Robust two-tail p-values in parentheses: *** p<0.01, ** p<0.05, * p<0.1.
Model 2 shows marginal effects

Notes:

Regression model

$$AQ_{it} = \alpha + \beta_1 \mathbf{PHpm}_{it} + \beta_2 \mathbf{PHpm*Ften}_{it} + \beta_3 \mathbf{Same\_uni}_{it} + \beta_4 \mathbf{Women}_{it} + \beta_5 Pten_{it} + \beta_6 Ften_{it} + \beta_7 Loc\_uni_{it} + \beta_8 Ln\_fees_{it} + \beta_9 d\_kpmg_{it} + \beta_{10} Nsub_{it} + \beta_{11} Lev_{it} + \beta_{12} Size_{it} + \beta_{13} Cfo_{it} + \beta_{14} Growth_{it} + \beta_{15} Loss_{it} + \beta_{16} Roa_{it} + \beta_i IND_t + \beta_j YEAR_i + \varepsilon_{it}$$

Where AQ = *AWCA* or *MB* respectively , as presented above in Model 1 and Model 2.

AWCA represents the absolute abnormal working capital accrual (DeFond & Park, 2001); ***Mb*** is an indicator variable (ID) = 1 if the firm meets or beats the mean analysts forecast using discretionary accruals, 0 otherwise. Specifically, we require that EPS > analyst consensus forecast and EPS – discretionary accruals < analyst consensus forecast for MB = 1; ***Hpm*** is the sum of audit hours spent by partner and managers on a specific engagement, divided by the sum of audit hours spent by seniors and staff; ***Same_uni*** represents the percentage of partner and managers in a specific team who have attended the same university; ***Women*** represents the percentage of female partners and managers in each audit team; ***Pten*** is the number of years a specific partner has been auditing the same client; ***Ften*** is the number of years a specific audit firm has been auditing the same client; ***Loc_uni*** is a dummy variable equal to 1 if the partner has attended university in the North of Italy, 0 otherwise; ***Ln_fees*** is the natural logarithm of audit fees paid to the incumbent auditor in Euro (€); ***Aud_firm*** is a dummy variable equal to 1 if the audit company is COMPANY "A", 0 otherwise; ***Nsub*** is the number of subsidiaries of the client; ***Lev*** is computed as (Long term debt + short term debt included in current liabilities)/Total Assets; ***Size*** is the natural logarithm of total sales; ***Cfo*** represents the operating Cash Flow scaled by initial total assets; ***Growth*** represents the ***c***hange in sales divided by sales in year t-1; ***Loss*** is a dummy variable equal to 1 if the client company incurred an accounting loss in year t-1, 0 otherwise ***Roa*** is computed as Ebit/Total Assets.

TABLE 5
The impact of audit team characteristics on earnings quality: control for corporate governance quality

	Expected sign	Model 1 *AWCA*	t-stat	Model 2 MB	z-stat
Variables of interests					
Hpm	?	0.632**	2.22	0.019***	2.61
*Hpm*Ften*	?	-0.096**	-2.29	-0.003**	-2.10
Same_uni	?	0.049**	2.11	0.003**	2.27
Women	-	-0.105***	-3.10	-0.006***	-2.97
Control Variables					
Pten	?	-0.004	-0.90	-0.000	-0.85
Ften	?	0.026**	2.25	0.001**	2.19
Loc_uni	?	0.035	1.38	-0.005**	-2.56
Ln_fees	?	0.069**	2.61	0.002**	2.45
Aud_firm	?	0.004	0.20	-0.124***	-2.90
Nsub	+	0.000	1.29	0.000	1.51
Lev	+	0.000	0.01	-0.008*	-1.81
Size	-	-0.053***	-3.23	0.000	0.46
Cfo	-	-0.142	-1.38	-0.017**	-2.02
Growth	?	-0.001	-0.06	-0.007***	-3.14
Loss	+	0.025	1.16	-0.006**	-2.10
Roa	-	0.141	0.55	-0.001	-0.09
Formal_ind	?	0.011	0.24	-0.002	-0.38
CEO_duality	?	-0.011	-0.65	0.001	0.84
Intercept		0.079	0.56	-	-2.65
Year fixed effects		Yes		Yes	
Industry fixed effects		Yes		Yes	
N		187		155	
Adjusted R^2		53.5%		51.6%	

Robust two-tail p-values in parentheses: *** p<0.01, ** p<0.05, * p<0.1.
Model 2 shows marginal effects

Notes:
Regression model
$AQ_{it} = \alpha + \beta_1 \boldsymbol{PHpm}_{it} + \beta_2 \boldsymbol{PHpm*Ften}_{it} + \beta_3 \boldsymbol{Same\_uni}_{it} + \beta_4 \boldsymbol{Women}_{it} + \beta_5 Pten_{it} + \beta_6 Ften_{it} + \beta_7 Loc\_uni_{it} + \beta_8 Ln\_fees_{it} + \beta_9 d\_kpmg_{it} + \beta_{10} Nsub_{it} + \beta_{11} Lev_{it} + \beta_{12} Size_{it} + \beta_{13} Cfo_{it} + \beta_{14} Growth_{it} + \beta_{15} Loss_{it} + \beta_{16} Roa_{it} + \beta_{17} Formal\_indep_{it} + \beta_{18} CEO\_duality_{it} + \beta_i IND_t + \beta_j YEAR_i + \varepsilon_{it}$
Where $EQ = AWCA$ or MB respectively , as presented above in Model 1 and Model 2.

AWCA represents the absolute abnormal working capital accrual (DeFond & Park, 2001) ***Mb*** is an indicator variable (ID) = 1 if the firm meets or beats the mean analysts forecast using discretionary accruals, 0 otherwise. Specifically, we require that EPS > analyst consensus forecast and EPS – discretionary accruals < analyst consensus forecast for MB = 1; ***Hpm*** is the sum of audit hours spent by partner and managers on a specific engagement, divided by the sum of audit hours spent by seniors and staff; ***Same_uni*** represents the percentage of partner and managers in a specific team who have attended the same university; ***Women*** represents the percentage of female partners and managers in each audit team; ***Pten*** is the number of years a specific partner has been auditing the same client; ***Ften*** is the number of years a specific audit firm has been auditing the same client; ***Loc_uni*** is a dummy variable equal to 1 if the partner has attended university in the North of Italy, 0 otherwise; ***Ln_fees*** is the natural logarithm of audit fees paid to the incumbent auditor in Euro (€); ***Aud_firm*** is a dummy variable equal to 1 if the audit

company is COMPANY “A”, 0 otherwise; ***Nsub*** is the number of subsidiaries of the client; ***Lev*** is computed as (Long term debt + short term debt included in current liabilities)/Total Assets; ***Size*** is the natural logarithm of total sales; ***Cfo*** represents the operating Cash Flow scaled by initial total assets; ***Growth*** represents the ***c***hange in sales divided by sales in year t-1; ***Loss*** is a dummy variable equal to 1 if the client company incurred an accounting loss in year t-1, 0 otherwise ***Roa*** is computed as Ebit/Total Assets; ***Formal_ind*** represents the percentage of Board members who are formally independent; ***CEO_duality*** is a dummy variable equal to 1 if the CEO is contemporarily President of the Board of Directors, 0 otherwise.