The effects of auditor social and human capital on auditor compensation: Evidence from the Italian small audit firm market

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ABSTRACT: This study examines whether social and human capital influence the compensation of individual auditors in the small audit firm market. We employ a sample of Italian auditors and use measures from the network and auditing literatures to capture their professional connections, representing social capital, and their industry expertise, representing human capital. Our findings show a positive and economically meaningful association between these individual attributes and auditor compensation. We run several tests to address potential endogeneity issues in our research design. Our results suggest that, in the small audit market, clients perceive as valuable those auditors with higher social and human capital, and as a result, are willing to pay a premium for these specific auditor attributes.

Keywords: small audit firm market, auditor compensation, audit fees, social capital, human capital.

JEL Classifications: M4; M40; M41; M42; M49

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1. Introduction

This paper examines whether social and human capital influence the compensation of individual auditors in the small audit firm market. In the segment of the audit market dominated by large audit firms, prior studies have shown that individual auditor characteristics affect auditor compensation (Knechel, Niemi, & Zerni, 2013), auditor independence (Chen, Sun, & Wu, 2010), and audit quality (Goodwin & Wu, 2016; Gul, Wu, & Yang, 2013; Knechel, Vanstraelen, & Zerni, 2015). Only recently, a few studies have shifted the focus to examine the dynamics and features of the small audit firm market (e.g., Bills & Stephens, 2016; Bills, Cunningham, & Myers, 2016; Keune, Mayhew, & Schmidt, 2016). This market is characterized by a large number of small and medium private clients and small suppliers (Ghosh & Lustgarten, 2006).[1] Private companies demand audit quality to mitigate agency conflicts, to satisfy contractual constraints imposed by creditors, to support managers' decisions, and to obtain business advice in order to improve operational efficiency and effectiveness (Vanstraelen & Schelleman, 2017). For small audit firms, audit quality might be more dependent on the competence, judgment, and integrity of the individual auditor given that the in-house networking/consultation opportunities are limited (Francis & Yu, 2009), and the quality control systems are less sophisticated (Langli & Svänstrom, 2014).

Prior research (e.g., Alle & Yohn, 2009; Hope, Langli, & Thomas, 2012; Sundgren & Svanström, 2013) has investigated private clients' decisions to have an audit as well as their choice of auditors. Private companies seek from their auditor information and advice on internal controls and general business issues, above and beyond core audit services (Döving &

[1] In 2014, 95.63% percent of firms in the European Union (28 countries) in the 'Accounting, bookkeeping, auditing and tax services' sector were "micro enterprises" operating with fewer than 10 employees (200,480 firms with 2–9 employees and 373,720 firms with 0 or 1). See http://ec.europa.eu/eurostat/data/database

Goodenham, 2008; Fontaine & Pilote, 2011, 2012; Herda & Lavelle, 2013). Rather than an arm's-length, transactional relationship with their auditor, private clients prefer a relation based on communication and trust without sacrificing independence (Fontaine & Pilote, 2012; Herda & Lavelle, 2013). In the small audit firm market, it seems plausible that private clients perceive auditor characteristics as valuable not just because of their influence on the quality of the statutory audit (e.g., Gul et al., 2013; Knechel et al., 2015; Amir, Kallunki, & Nielson, 2014) but also for their impact on value-added audit services (e.g., Collin, Ahlberg, Berg, Broberg, & Karlsson, 2017; Herda & Lavelle, 2013, p. 113).[2] This paper examines two auditor attributes, social capital and human capital, that are complementary, yet distinct, mechanisms through which individuals generate value in professional services firms (Mawdsley & Somaya, 2015), and are critical resources for accounting firms' performance (Pennings, Lee, & Van Witteloostuijn, 1998). In the small audit firm market, we contend that human and social capital can confer distinctive competitive advantages that may increase private clients' perception of high-quality audits and result in compensation premiums.

To examine the impact of social and human capital on auditor compensation we develop a model where we control for individual auditors' attributes as well as for those factors (e.g., client size, complexity, and financial and overall risk) that the prior literature has identified as determinants of audit fees.[3] To test the model, we use a sample of Italian auditors working in small audit firms and auditing private companies. In Italy, private companies engage three individual auditors to form a board of statutory auditors (BSA). BSA members jointly audit the financial statements of client companies, sign a single audit report, and are jointly liable for any

[2] Herda and Lavelle (2013, p. 113) define value-added audit services as "client-service activities resulting from an audit that are not directly related to verifying the financial statements".
[3] In this paper, we use auditor compensation and audit fees interchangeably based on the assumption that fees revenues represent the main source of income for auditors in our sample.

undiscovered or unreported material misstatement.[4] In this setting, auditors interact with their peers assigned to multiple BSA engagements, establish working relationships, and thus form professional networks. We collected information about their compensation, individual attributes, and professional networks through the proprietary data provided by a local Chamber of Commerce. Our final sample consists of 800 individual auditors during the period 2008–2011 (2,605 auditor-year observations). In our empirical model, we follow previous network studies (e.g., Larcker, So, & Wang, 2013; Payne, Moore, Griffis, & Autry, 2011) and use degree centrality to proxy for social capital. Like previous researchers (e.g., Knechel et al., 2013; Zerni, 2012), we operationalize auditor human capital with industry specialization. We use audit fees charged by each BSA member to calculate total annual compensation and average compensation per engagement.

Our results show a positive and economically meaningful association between the measures of compensation and social and human capital. This association suggests that, in the small audit market, clients perceive as valuable those auditors with higher social and human capital, and as a result, are willing to pay a premium for these specific auditor attributes. Our findings are also consistent with the claim that, in this market, clients seek from their auditors value-added audit services over and above the statutory audit. As an additional analysis, we examine whether the influence of social and human capital on compensation differs depending on the organizational form of the audit firm (sole proprietors vs. partnerships) but find no differences. Since omitted variables bias might lead to inconsistent estimates of the coefficient of social capital, we use two alternative approaches—an auditor fixed-effects model and an instrumental variable model—and find support for our main findings. Finally, we run some

[4] The BSA is similar to other joint audit arrangements. For a review, please see Ratzinger-Sakel, Audousset-Coulier, Kettunen, and Lesage (2012).

sensitivity analyses to ensure that our results do not depend on our research design choices.

Our study complements Knechel et al.'s (2013) findings on the compensation of Swedish partners in Big 4 audit firms, but differs in three ways: we focus on individual auditors working for small audit firms and servicing private companies, we take into account auditors' attributes that they do not consider, such as social capital, and we explore the compensation effects of firm legal form (sole proprietorship vs. partnership). We also respond to recent calls to further examine how individual auditor characteristics influence audit outcomes (Francis, 2011; DeFond & Zhang, 2014; Lennox & Wu, 2018). Specifically, we show that industry specialization and social capital influence compensation beyond auditor and client characteristics in the small audit firm market, a market whose dynamics remain very much under-researched (Bills et al., 2016). Further, this study adds to the increasing literature on the effects of social capital on managerial decisions by examining its effects on client managers' choice of auditor (Horton, Millo, & Serafeim, 2012; Horton, Tuna, & Wood, 2014; Jha & Chen, 2015). We also contribute to those studies that examine auditors' advisory role (Herda & Lavelle, 2013) by providing large-sample evidence on how this role can drive clients' perception of high-quality audits in private clients and eventually be reflected in compensation premiums due to industry expertise. Finally, our findings are informative to regulators and policymakers concerned about auditor independence in the small audit market, where the potential threat to independence comes from the "trusted advisor" relationship that naturally develops between the auditor and the client in this market (CFRR, 2016; IFAC, 2010).

The paper is organized as follows. The next section summarizes the background literature and develops the hypotheses. Section 3 explains the institutional setting. Section 4 describes the sample, and Section 5 presents the research design. Section 6 reports the descriptive statistics and the univariate analysis, while Section 7 reports the multivariate results. In the final section, we

summarize our main results and conclude the paper with an acknowledgment of limitations.

2. Background and Hypotheses Development

Small audit firms primarily serve private small and medium-sized entities. Recent studies (e.g., Allee & Yohn, 2009; Collin et al., 2017; Herda & Lavelle, 2013; Minnis, 2011) suggest that these clients expect two different outcomes: the audited financial statements, and advice and recommendations resulting from other client-service activities that are not directly related to verifying the financial statements (Fontaine, Letaifa, & Herda 2013; Herda & Lavelle, 2013, p. 113). For instance, private clients demand auditor advice on internal control and accounting systems, general business, and tax-related issues (Ojala, Collis, Kinnunen, Niemi, & Troberg, 2016; Bianchi, Falsetta, Minutti-Meza, and Weisbrod, 2019). Furthermore, in family firms, besides the monitoring role, auditors perform advisory and mediating functions, and these additional functions are more likely to be performed by smaller audit firms rather than by large auditors (Collin et al., 2017). Therefore, clients' perception of audit quality depends on both the verification of financial statements—*core value*—and these additional services—*added value* (Fontaine et al., 2013, p. A3).

Auditor personal attributes influence audit quality (e.g., Gul et al., 2013; Amir et al., 2014; Knechel et al., 2015). For instance, Amir et al. (2014) state that auditing requires expertise and skills together with personal judgement in assessing the overall audit risk, the scope of the audit and the accounting choices done by the client; hence, they suggest that auditors' personal attributes might have a significant effect on their decisions regarding the audit task and result in higher audit quality.[5] Therefore, the personal attributes and competencies of individual auditors

[5] According to the audit risk model (Hogan & Wilkins, 2008; DeFond & Zhang, 2014), after client assessment, an auditor chooses a level of effort which is expressed as a function of the client's inherent and control risk, which is equivalent to the client firm's innate characteristics and the quality of its financial reporting system. Although in our

might influence clients' perception of audit quality, thereby affecting their contracting and pricing decisions. Relatedly, archival research shows that auditor characteristics such as educational background, expertise, and gender are associated with audit fees and compensation (e.g., Amir et al., 2014; Zerni, 2012, Knechel et al., 2013). While all these studies examine auditors servicing public companies, we know very little about what influences clients' perception of audit quality in the small audit market. Building on Tan's (1999) arguments that audit partners have to excel in communication skills, technical knowledge, and interpersonal skills, we examine whether auditor professional connections (social capital) and expertise (human capital) influence private clients' perception of audit quality and lead to higher auditor compensation.

2.1. Auditor Social Capital

Adler and Kwon (2002, p. 17) define social capital as "the goodwill that is engendered by the fabric of social relations". Social capital confers information, influence, and trust (Adler & Kwon, 2002; Kwon & Adler, 2014). Its consequences for individuals include advancing a career (Burt, 1992), gaining power (e.g., Krackhardt, 1996), and increasing compensation levels (e.g., Burt, 1992, 1997; Xiao & Tsui, 2007). In professional firms, social capital is regarded as a mechanism to generate commitment with clients and other professionals, and to enhance trust, which is an important enabler of knowledge sharing between individuals (Swart, Katrin, & Kinnie, 2015). Thus, professionals generally pay significant attention to building social capital, which may become a unique resource of competitive advantage, difficult for competitors to imitate (Mawdsley & Somaya, 2015; Teece, 2003).

empirical model we control for client firm characteristics, including financial and overall risk measures, we cannot rule out the alternative explanation that the increased compensation we observe is due to increased effort due to client audit risk rather than to clients' perception of higher levels of audit quality.

We argue that auditor social capital can add value to the audit service and generate a competitive advantage that will eventually raise compensation. First, it increases individuals' competence to perform the audit task and, in turn, audit quality. Auditors' interactions not only with their clients but also with other auditors can generate knowledge spillovers that can enrich their own expertise and give their firm a competitive advantage (Hitt, Bierman, Shimizu, & Kochhar, 2001; Nelson & Tan, 2005). Horton et al. (2014) use a sample of French public companies to construct a network of interlocked directors and audit partners and find that audit partners' centrality in the network—a proxy for social capital—is associated with higher levels of audit quality. They attribute their results to the effect of a partner's centrality on her tacit knowledge, which is acquired through sharing information with colleagues and clients, and on her reputational capital, because partners with a bigger network may face comparatively greater reputational penalties when an audit fails. In a related study, Bianchi (2018) shows that small and medium Italian private firms audited by auditors who are more central in their professional network have fewer modified audit opinions, lower abnormal accruals, and fewer tax-related restatements. This result suggests that auditors develop expertise through collaboration with peers in multiple joint engagements. Finally, in a study about the benefits of membership in accounting firm associations, Bills et al. (2016) find that firms that belong to a network provide higher-quality audits than non-member firms and that they are able to charge higher fees.

Second, social capital may also improve clients' perception of quality of value-added audit services. Individual auditors with higher social capital can mobilize more alternative providers of valuable resources, including other auditors, than those with lower social capital (e.g., Stam & Elfring, 2008, p. 99). These interactions can be important for small practices, which lack the in-house networking/consultation opportunities that Big 4 firms typically have (Fontaine et al., 2013; Francis & Yu, 2009). Döving and Goodenham (2008) show that collaborations and

alliances between auditors improve the scope and quality of business services. Collin and colleagues (2017, p. 16) remark that the task of the auditor as consigliere is 'to advise the actors, using their network, where to find help and support'. Moreover, individuals with higher social capital are likely to be perceived as more visible and trustworthy than those with lower social capital (Stam and Elfring, 2008). Based on the above arguments it is reasonable to assume that audit clients can recognize auditors with higher social capital and are willing to compensate them because they expect, in return, higher-quality audits and more and better value-added services. Thus, we expect that

Hypothesis 1: Auditor social capital is positively associated with auditor compensation.

2.2. Auditor Human Capital

Prior literature makes a distinction between general and specific human capital, where the most important feature of general human capital is education while the most important feature of specific human capital is industry (or firm) expertise (Bröcheler, Maijoor, and Witteloostuijn, 2004, p. 630). Auditor expertise is indelibly tied to individuals, and it can improve learning and performance in the audit process (Francis, Reichelt, and Wang, 2005). Expertise can be obtained via specialized indirect experience (e.g., training) and focused direct experience, such as having more interactions with clients in a particular industry (Lennox & Wu, 2018). Prior experimental studies have shown that auditors with industry expertise (or domain-specific knowledge) generally make higher quality audit judgements (e.g., Moroney, 2007). Similarly, archival studies, conducted on samples of public companies, have documented a positive association between industry expertise and audit quality (Minutti-Meza, 2013).[6] The rationale for these

[6] Besides helping to produce high-quality audit services, specific human capital also decreases employee turnover (Lane & Parkin, 1998) and reduces the auditor's likelihood of becoming self-employed (Carrera, Carmona, &

findings is that auditors, by investing in industry specialization, can offer better quality audit services and a higher level of assurance which can reduce clients' agency costs (Goodwin and Wu, 2014, p. 1537). Accordingly, prior literature argues that industry specialists can potentially differentiate themselves by providing higher quality audits and charge fee premiums. Several studies find evidence of fee premiums at the audit firm level (e.g., Casterella, Francis, Lewis, and Walker, 2004; Francis, Reichelt, and Wang, 2005; Carson, 2009; Cahan, Godfrey, Hamilton, and Jeter, 2011).[7] More recently, Zerni (2012) and Goodwin and Wu (2014) examine partner level data and find evidence of industry specialist premiums, which suggests that the market values partners who have greater industry expertise (Lennox and Wu, 2018). Furthermore, Goodwin and Wu (2014) argue that the ability to earn a fee premium for industry expertise compensates for partners' investments in specialization and enhances the value of their human capital.

However, little is known about the role of industry specialization as a proxy for specific human capital in the small audit firm market. In private clients, the lower degree of agency conflicts might imply lower demand for quality-differentiated audits (DeFond and Zhang, 2014). Further, private clients have relatively simple structures that might result in low financial statement complexity, suggesting that auditing private clients can potentially involve repetition and hence may be conducive of generation of economies of scale which can eventually result in audit fees discounts (Arnold, Bateman, Ferguson, & Raftery, 2017). Moreover, fierce price competition might suggest the absence of industry specialist premiums in the small audit firm market (Ferguson et al., 2014).

Nevertheless, Niemi (2004) shows that specific human capital proxied by generic work

Gutiérrez, 2007).

[7] A few studies (Ferguson and Stokes, 2002; Ferguson, Pündrich, and Raftery, 2014) challenge this empirical evidence by finding no evidence of a premium for industry specialists. These studies examine small publicly listed clients, thereby suggesting that the association between specialist fee premiums and auditor specialization might be driven by fees paid by large publicly listed clients in each industry (Minutti-Meza, 2013).

experience, is among the significant determinants of fee premiums for private clients. We argue, that industry expertise may also contribute to clients' perception of high levels of audit quality in the small audit firm market, especially with regard to value-added services. For instance, auditors who are experts in an industry may help their clients more than non-specialists to improve operational efficiency and effectiveness, to resolve internal agency problems, and to increase compliance with laws and regulations (Knechel, Niemi, & Sundgren, 2008). Furthermore, auditors may provide to their clients with value-added services that consist in industry-specific summaries or implementation guidance (Herda & Lavelle, 2013). Finally, in family-controlled firms, industry expertise might be a critical resource for the auditor as 'consigliere' (Collin et al., 2017). On the basis of the above arguments, we postulate that clients can perceive auditors with industry specialization as those with reputations for higher levels of audit quality and, hence, are willing to compensate them with compensation premiums. Thus, we expect that

Hypothesis 2: Auditor specific human capital, as measured by industry specialization, is positively associated with auditor compensation.

3. Institutional Setting

As in other European countries (see, e.g., Dedman, Kausar, & Lennox, 2014; Hardies, Breesch, & Branson, 2016; Svanström, 2013; Van Tendeloo & Vanstraelen, 2008), annual audits in Italy are regulated by the European Directive 2006/46/CE and are mandatory for companies with total assets higher than 4.4 million euros, total sales higher than 8.8 million euros, and more than 50 employees. When any of these criteria is met, then shareholders are required to appoint three individual auditors to form what is called a *Collegio Sindacale* or Board of Statutory Auditors (BSA; see Bisogno, 2012; Matonti, Tucker, & Tommasetti, 2016). Since 2004, statutory audits of private companies can be performed by a BSA, a registered individual auditor, or an audit firm.

Evidence shows that 90 percent of private companies are audited by a BSA (e.g., Cason, 2011).[8]

This study examines a sample of firms that are audited by BSAs. Shareholders appoint BSA members during the shareholders' meeting. Each BSA member negotiates and signs an individual contract with the client firm and charges the client separately. All members of the BSA must be registered statutory auditors, and they can work either as sole practitioners or in a partnership.[9] BSA members adopt Italian auditing standards, which, since the European Directive 2006/46/CE, are based on the International Standards of Auditing (ISAs). Members serve for three-year renewable terms. In case of death or resignation, shareholders must nominate a new BSA member to join the other two. BSA members can delegate audit work to assistants, but their responsibility and liability are not affected by this delegation. The activities of the BSAs are overseen by the Italian Minister of Economics and Finance (for more details, see Bianchi, 2018).

4. Data

The Chamber of Commerce of Verona, which is the repository of corporate governance data for all companies with legal head offices in the province of Verona, supported this research project by sharing its proprietary data.[10] The administrative area of Verona represents an average Italian province, with a population in 2009 of 920,000, an unemployment rate of 4.7 percent, a GDP per capita of 29,300 euros, and total exports of almost 6 billion euros (ISTAT, 2009). We examine

[8] When the BSA is not in charge of the statutory audit, its functions are like those of the BSA in a public company, which resembles the audit committee. Italian public companies cross-listed in the United States can elect the SEC Rule 10A-3 exemption for foreign private issuers and designate the BSA to perform the functions of the audit committee, as stipulated by the SOX Act and SEC rules. See Melis (2004) for more details about the role of the BSA for public companies. For additional information about Italian accounting and the auditing profession, see Zambon (2003). The studies of Ianniello (2012) and Cameran, Prencipe, and Trombetta (2016) provide insights about the current Italian auditing environment.

[9] A registered auditor is an auditor enrolled in the National Register of Statutory Auditors or in the National Register of Certified Public Accountants. These registers are maintained by the Minister of Economics and Finance in compliance with Articles 15 and 16 of the European Directive 2006/43/CE.

[10] The data are publicly available on demand, and the Chamber of Commerce applies fees for each firm query.

all non-financial private firms in Verona that are required to audit their financial statements and are listed in the AMADEUS database provided by Bureau Van Dijk. We identify all the individual auditors appointed to the clients' BSAs in our sample and calculate their compensation using the proprietary data provided by the Chamber of Commerce.

To operationalize auditors' social capital, we follow prior network studies (Hanneman & Riddle, 2005; Rauch, 2010) and adopt the full network method to track all the professional ties created through BSA appointments among auditors in the local audit market of the Verona province. Sepcifically, we assume that all the interactions among these auditors occur inside the boundaries of this local market. From the 2008–2011 period, we identify an initial sample of 1,461 BSA members (registered auditors) performing the mandatory financial audits of 1,186 private firms. After dropping those observations where financial data were incomplete, we obtain a final sample of 800 individual auditors (2,605 auditor-year observations).

5. Research Design

To examine the impact of social and human capital on auditor compensation we develop the following empirical model where we control for individual auditors' attributes as well as for those factors (client size, complexity, and financial and overall risk) that the prior literature shows are determinants of audit fees (e.g., Zerni, 2012; Knechel et al., 2013; Goodwin and Wu, 2014):

$$\begin{aligned} COMPENSATION_{i,t} = {} & \beta_0 + \beta_1 SOCIAL\_CAPITAL_{i,t} + \beta_2 IND\_SPEC_{i,t} \\ & + \beta_3 PROPRIETOR_i + \beta_4 BACHELOR_i \\ & + \beta_5 LNAPPOINTMENTS_{i,t} + \beta_6 LAGE_{i,t} + \beta_7 LEXPERIENCE_{i,t} \\ & + \beta_8 CHAIR_{i,} + \beta_9 STATUS_i + \beta_{10} FEMALE_i \\ & + \beta_{11} LOCALLY\_BORN_i + \beta_{12} LTA_{i,t} + \beta_{13} LEVERAGE_{i,t} \end{aligned} \quad (1)$$

$$+\beta_{14}GROWTH_{i,t}+\beta_{15}CFO_{i,t}+\beta_{16}QUICK\_RATIO_{i,t}+\beta_{17}CATA_{i,t}$$

$$+\ \varepsilon_{i,t}\,.$$

Our dependent variable is $COMPENSATION_{i,t}$, which proxies the compensation of auditor *i* in year *t*. We use the amount of BSA audit fees disclosed in companies' annual reports to determine the amount of compensation that auditors receive for their financial audit services. Unfortunately, the exact amount that each BSA member charges to the client is not publicly available, so we estimate that compensation as follows. Given that the compensation of the chair of the BSA is usually double the amount received by the other two members (Ministerial Decree 169/2010, Article 37.1.c), we divide BSA fees by four to obtain the compensation for the other two members, and double this amount to proxy the compensation of the chair. For each auditor *i*, we sum the fees received from all her BSA engagements in year *t* to proxy her compensation ($COMPENSATION_{i,t}$). While imperfect, this allocation procedure represents the best we can do with the available data. In a supplemental analysis, we use the average fee per audit engagement ($AVFEE_{i,t}$) as an alternative dependent variable. $AVFEE_{i,t}$ is the result of dividing the total audit fees of auditor *i* in year *t* by the total number of appointments that auditor *i* has in year *t.* This measure of auditor compensation helps us understand whether our test variables are associated with the existence of a fee premium per BSA engagement.

Our first hypothesis states that there is a positive association between an auditor's social capital and her compensation. In the network literature, social capital is usually operationalized with *network centrality*, which indicates where an actor is positioned relative to others (Payne et al., 2011). Central actors are typically viewed as those with greater access to, and a larger amount of, information or social support from the network (Adler & Kwon, 2002). We follow previous studies (e.g., Fracassi, 2017; Horton et al., 2012; Larcker et al., 2013) and proxy social capital

(*SOCIAL_CAPITAL*$_{i,t}$) with *degree centrality*, which reflects the number of contacts an auditor has in her professional network and therefore, roughly, the total amount of information and resources available to her and the intensity of communication (Borgatti, Everett, & Johnson, 2013). To compute this metric, we sort the data on the yearly composition of companies' BSAs by individual auditor, to obtain, for each auditor, a list of all the other auditors with whom she collaborates in BSA engagements. The number of those colleagues corresponds to *degree centrality*. From the network literature (Borgatti et al., 2013, p. 165), *degree centrality* is simply the row sums of the adjacency matrix X of an undirected network. If d_i is the *degree centrality* of actor i and x_{ij} is the (i, j) entry of the adjacency matrix, then $d_i=\sum x_{ij}$. In sensitivity analyses, we use alternative measures of social capital.

Hypothesis 2 postulates a positive association between specific human capital proxied by industry specialization and compensation. *IND_SPEC*$_{i,t}$ is a dichotomous variable equal to 1 if auditor i in year t is an industry leader in terms of market share in at least one of the industries where the auditor operates. Following previous researchers (e.g., Goodwin & Wu, 2014), we define an industry leader as an auditor who has a market share (in terms of clients' total assets) that falls in the top quartile of the distribution in year t.[11]

We control for several individual characteristics of auditors. We observe that the small audit firm market is populated by two types of entities: small partnerships and sole practitioners (Niemi, 2004).[12] To control for differences in economic incentives linked to the organizational form of the business, we include the variable *PROPRIETOR*$_i$, which is a dichotomous variable

[11] Industries are grouped by two-digit NACE industry codes. Results are qualitatively similar when we use the last decile of the distribution of market share in year t or when we treat industry specialization as a continuous variable, thereby capturing the percentage of industries where the auditor is a specialist.

[12] In a sole proprietorship the audit practice is owned and run by an auditor, who can hire some employees. A partnership, on the other hand, is an unincorporated association of two or more individuals. In both cases, firms are not separate entities from the owners of the business (the sole proprietor or the partners), and they have unlimited liability in case of lawsuits or obligations.

equal to 1 if auditor *i*'s business is organized as a sole proprietorship, and 0 if it is organized as a partnership.[13] We control for human capital by adding a control variable for the level of education, *BACHELOR*, which is equal to 1 if the auditor has a bachelor's degree, and 0 otherwise.[14] We also control for another potential source of human capital, professional experience, by adding $LEXPERIENCE_{i,t}$, which is the natural logarithm of years since licensure in year *t*. We control for the number of BSA engagements, $LNAPPOINTMENTS_{i,t}$, which is the natural logarithm of the number of clients auditor *i* audits in year *t*, and for the proportion of engagements where auditor *i* acts as the chair of the BSA ($CHAIR_{i,t}$). We also control for auditor age, $LAGE_{i,t}$, measured as the natural logarithm of years. We add a control variable for auditors' social status with $STATUS_i$, which is equal to 1 if an auditor is a member of a local social club where membership is by invitation only, and 0 otherwise.[15] Finally, we control for place of birth by adding the dichotomous variable $LOCALLY\_BORN_i$, which is equal to 1 if an auditor was born in the province of Verona, and 0 otherwise.[16]

We include in our model client characteristics identified by previous researchers (e.g., Knechel et al., 2013). First, we include the average size of clients audited by auditor *i* in year *t*. The variable $LTA_{i,t}$ is the natural logarithm of the average total assets of auditor *i*'s clients in year *t*. We also include a set of controls related to the complexity, and financial and overall risk of the

[13] This information was obtained from multiple sources. We used the website of the local register of accountants as our main source; if the register did not list organizational form, we searched on Google by the auditor's name and used any information available online from the website of the accounting firm, curricula, and newspaper articles.

[14] Accounting professionals in Italy were historically divided into two groups: 'Dottori Commercialisti' and 'Ragionieri Commercialisti'. The register of accountants of Verona provides information about both groups. The only remarkable difference between the two groups is the level of education required: for 'Dottori Commercialisti' it was mandatory to hold a bachelor's degree in business administration or economics, while 'Ragionieri Commercialisti' were required to hold a diploma from a commercial school.

[15] In Italy two non-profit organizations belonging to international networks are well spread over the territory. Because of their similar missions, overarching values, and organization, we considered them as a single homogeneous group. Under confidentiality, we obtained complete lists of the members of all the Italian clubs of these two networks. We matched all the individuals in our sample with the lists of members by city of residence.

[16] In Italy, each individual is assigned a unique identification number that includes information such as the town and date of birth. Each town is assigned a unique code, which we use to identify auditors born in the province of Verona.

clients in portfolio. Specifically, $LEVERAGE_{i,t}$ is defined as the average ratio of total liabilities to total assets of auditor *i's* clients in year *t*. $GROWTH_{i,t}$ is the average sales growth rate of auditor *i's* clients in year *t*. The variable $CFO_{i,t}$ measures the average annual cash flow from operations divided by average total assets of auditor *i's* portfolio of clients in year *t*. $QUICK\ RATIO_{i,t}$ equals average current assets, net of inventory, over current liabilities of auditor *i's* clients in year *t*. $CATA_{i,t}$ is the average ratio of current assets to total assets of auditor *i's* clients in year *t*. All the variables are listed in Appendix A.

6. Descriptive Statistics and Univariate Results

Table 1 reports descriptive statistics of the complete sample. $COMPENSATION_{i,t}$ has a mean (median) of 16,000 euros (9,130 euros), while $AVFEE_{i,t}$ has a mean (median) of 5,830 euros (5,200 euros). On average, auditors have 5.82 contacts in their professional networks, 42 percent are classified as industry specialists, 36 percent are organized as sole proprietors, 73 percent hold a bachelor's degree, 14 percent are female, 9 percent are members of at least one of two local social clubs, and 81 percent were born in the province of Verona. On average, auditors are 51 years old and have 3.85 BSA appointments and 20 years of professional experience. For companies in our sample, on average, client size is 48 million euros in total assets, leverage is 70 percent of total assets, sales growth is 5 percent, cash flows from operations are 6 percent of total assets, quick ratio is 1.23, and current assets are 69 percent of total assets.

---------- Insert Table 1 about here ----------

Table 2 shows the Pearson correlation coefficients. $COMPENSATION_{i,t}$ is positively correlated with $AVFEE_{i,t}$, $SOCIAL\_CAPITAL_{i,t}$, $BACHELOR_i$, $IND\_SPEC_{i,t}$, $LNAPPOINTMENTS_{i,t}$, $LAGE_{i,t}$, $LEXPERIENCE_{i,t}$, $CHAIR_i$, and $LTA_{i,t}$. *COMPENSATION* is negatively correlated with $FEMALE_i$ and $PROPRIETOR_i$. $AVFEE_{i,t}$ is positively correlated with

$SOCIAL\_CAPITAL_{i,t}$, $BACHELOR_i$, $IND\_SPEC_{i,t}$, $LNAPPOINTMENTS_{i,t}$, $LAGE_{i,t}$, $LEXPERIENCE_{i,t}$, $CHAIR_{i,t}$, $LTA_{i,t}$, $GROWTH_{i,t}$, $CFO_{i,t}$, and $CATA_{i,t}$, while it is negatively correlated with $FEMALE_i$. Our proxy for social capital, $SOCIAL\_CAPITAL_{i,t}$, is positively correlated with $IND\_SPEC_{i,t}$, $LNAPPOINTMENTS_{i,t}$, $LAGE_{i,t}$, $LEXPERIENCE_{i,t}$, $CHAIR_{i,t}$, $STATUS_i$, $BACHELOR_i$, $LTA_{i,t}$, and $QUICK\_RATIO_{i,t}$, while it is negatively correlated with $PROPRIETOR_i$, $FEMALE_i$, and $LEVERAGE_{i,t}$. In sum, univariate analysis provides some preliminary support for our predictions.

---------- Insert Table 2 about here ----------

7. Results

7.1. Main Results

Table 3, column 1 reports the main results. We find a significant positive coefficient on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 7.91), which provides supporting evidence for hypothesis 1. This effect has a sizeable economic magnitude. Increasing $SOCIAL\_CAPITAL_{i,t}$ by one standard deviation, for example moving from a degree centrality of two to a degree centrality of seven, results in an increase in $COMPENSATION_{i,t}$ of 11,300 euro which is about 56% of its standard deviation. This suggests that auditors with higher social capital have privileged access to information and resources available in their professional network and are more able to attract and retain clients. We also find a significant positive coefficient on $IND\_SPEC_{i,t}$ (t-statistic = 4.20), which supports hypothesis 2 and confirms evidence from the literature on industry specialization. This result is also economically meaningful. Industry specialists ($IND\_SPEC_{i,t} = 1$) have an average compensation of 17,640 euros, while non-specialists ($IND\_SPEC_{i,t} = 0$) have an average compensation of 14,870 euros. With respect to the control variables, we find significant positive coefficients on $LNAPPOINTMENTS_{i,t}$, $LAGE_{i,t}$, $CHAIR_{i,t}$, $FEMALE_i$, $LTA_{i,t}$, and $CATA_{i,t}$. Finally, we find that the choice of organizational form (sole proprietorship vs. partnership) does not affect

auditors' compensation.

Table 3, column 2 shows results for the $AVFEE_{i,t}$ model. Again we find a significant positive coefficient on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 2.48), in accord with hypothesis 1. And again, this effect is economically meaningful. Increasing $SOCIAL\_CAPITAL_{i,t}$ by one standard deviation, for example moving from a degree centrality of two to a degree centrality of seven, is associated with an increase in $AVFEE_{i,t}$ of 362 euro which is about 12% of its standard deviation. We also find a significant positive coefficient on $IND\_SPEC_{i,t}$ (t-statistic = 3.98), which supports hypothesis 2. This result, too, has a sizeable economic magnitude. Industry specialists ($IND\_SPEC_{i,t} = 1$) have an average fee per BSA engagement of 6,230 euros compared to 5,540 euros for non-specialists. With respect to the control variables, we find significant positive coefficients on $BACHELOR_i$, $CHAIR_{i,t}$, $LTA_{i,t}$, and $CATA_{i,t}$, while we find significant negative coefficients on $LNAPPOINTMENTS_{i,t}$ and $CFO_{i,t}$.[17] Consistently with the results above, the organizational form of the business does not influence auditors' compensation.

---------- Insert Table 3 about here ----------

7.2. Robustness Analyses: Addressing Endogeneity

Our research design might suffer from omitted variables bias. Specifically, there might be some unobservable auditor characteristics that might be correlated with our test variable, auditor social capital, as well as with our dependent variable, and therefore might lead to inconsistent estimates of the coefficient of social capital. We propose two alternative approaches to alleviate this potential threat: an auditor fixed effects model (Aobdia, Lin, & Petacchi, 2015; Gul et al., 2013) and an instrumental variable approach (Caramanis & Lennox, 2008; Larcker & Rusticus,

[17] The variance inflation factors (VIFs) are less than five for all variables, indicating that multicollinearity does not appear to be an issue.

2007, 2010). We also examine the potential impact of the selection of the organizational form.

7.2.1. Omitted variables bias—auditor fixed effects model

A fixed effects model is based on the strong assumption that unobservable characteristics are constant over time; since differencing the auditor-year observations over the sample period eliminates these unobservable characteristics, it permits consistent estimation of the coefficients of the time-variant endogenous regressors (Cameron & Trivedi, 2005). Therefore, we first estimate the following model by adding a vector of auditor fixed effects (cf. Aobdia et al., 2015; Gul et al., 2013):

$$\begin{aligned} COMPENSATION_{i,t} = {} & \alpha_i + \beta_0 + \beta_1 SOCIAL\_CAPITAL_{i,t} + \beta_2 IND\_SPEC_{i,t} \\ & + \beta_3 LNAPPOINTMENT_{i,t} + \beta_4 LAGE_{i,t} + \beta_5 LEXPERIENCE_{i,t} \\ & + \beta_6 CHAIR_{i,} + \beta_7 TA_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 GROWTH_{i,t} + \beta_{10} CFO_{i,t} \\ & + \beta_{11} QUICK\_RATIO_{i,t} + \beta_{12} CATA_{i,t} + \varepsilon_{I,t}. \end{aligned} \quad (2)$$

α_i are the auditor individual effects covering all unobservable factors affecting auditor compensation, and β_0 are the time-specific effects that are constant across all auditors in our sample; all other variables are defined as for Equation (1).

Table 4 shows the results of Equation (2). In column 1, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 1.82) and on $IND\_SPEC_{i,t}$ (t-statistic = 3.70). These results provide supportive evidence for hypotheses 1 and 2, respectively. Among the control variables, we find significant positive coefficients on $LNAPPOINTMENTS_{i,t}$, $CHAIR_{i,t}$, $LTA_{i,t}$, and $LEVERAGE_{i,t}$, and a significant negative coefficient on $CFO_{i,t}$. We assess the significance of individual auditor fixed effects by estimating the *F*-statistic of the vector of fixed effects, which is 9.757 and is significant at the one-percent level. This significant *F*-statistic, combined with the significant coefficients on $SOCIAL\_CAPITAL_{i,t}$ and $IND\_SPEC_{i,t}$, is consistent with the notion that changes in auditor social capital and human capital have an

incremental effect on compensation, after we control for time-invariant individual auditor characteristics. In column 2, we tabulate results for our supplemental analysis of average fee per engagement ($AVFEE_{i,t}$), where we find a positive but not significant coefficient on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 0.91) and a negative but not significant coefficient on $IND\_SPEC_{i,t}$ (t-statistic = -0.57).[18]

---------- Insert Table 4 about here ----------

7.2.2. Omitted variables bias—instrumental variable approach

Another way to address the threat of endogeneity due to omitted variables bias is the instrumental variables method (Cameron & Trivedi, 2005). Larcker and Rusticus (2010) state that the choice of the instrumental variables is critical and challenging. Unfortunately, the literature does not identify good instruments for social capital; indeed, Payne and colleagues (2011) note that there is a dearth of studies that analyze social capital antecedents. Bianchi (2018) explores instrumental variables that can explain why some auditors are relatively better positioned in their professional networks. Specifically, he shows that place of birth can significantly influence the early formation of an auditor's professional networks and the resulting social capital. Towns with bigger populations offer more opportunities and resources to develop professional networks than smaller towns. Hence, we introduce as our first instrument the size of the town where an auditor was born, scaled by the total population of the region, at the time the auditor was born ($PLACE\_BIRTH_i$). We predict a positive association between $SOCIAL\_CAPITAL_{i,t}$ and $PLACE\_BIRTH_i$. We also predict that individuals who enter the profession earlier can have more professional opportunities to develop their network of contacts. Therefore, we use as our second

[18] In the next section, we use an instrumental variable method to address endogeneity threats and find supportive results to our main analyses in Table 3, Column 2, hence reducing potential concerns about not finding significant results in the auditor fixed effects model.

instrument the auditor's age at the time of licensure ($ENTRY_i$) and we predict a negative association with $SOCIAL\_CAPITAL_{i,t}$.

The validity of instruments depends on two conditions (Becker, Cronqvist, & Fahlenbrach, 2011). The first is that the instruments significantly predict the level of auditor social capital. Table 5, Panel A reports the results of the first-stage regression of auditor social capital. We find a significant negative coefficient for $ENTRY_i$ (t-statistic = –2.68) and a significant positive coefficient for $PLACE\_BIRTH_i$ (t-statistic = 2.58), showing a strong association between the two instruments and social capital. The second condition is that the instruments affect the dependent variable only through their effect on the endogenous social capital variable and not through any other mechanisms. Obviously, neither place of birth nor age at licensure can have been determined by the current level of compensation. Nevertheless, following Staiger and Stock (1997), it is common practice to examine the strength of the instruments in the first stage using *F*-statistics. Using the cutoff values of Stock, Wright, and Yogo (2002) and Kleibergen and Paap's (2006) test statistic, which allows for clustered standard errors, we can reject the null hypothesis that instruments are weak in the first-stage regression, at the five percent level of significance. Furthermore, a Hausman test rejects the null hypothesis that social capital is exogenous, at the five percent level of significance.[19]

Table 5, Panel B, column 1 shows the results of the second-stage regression of auditor compensation. In accord with evidence from the main analysis, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 2.93) and on $IND\_SPEC_{i,t}$ (t-statistic = 3.05). In column 2, we tabulate results of the second-stage regression for average fee per BSA

[19] We acknowledge the limitations of these statistical tests. The test of instrument validity relies on an untested assumption that at least one of the chosen instruments is valid. If both instruments are invalid, the test of instrument validity is invalid. Moreover, the Hausman test of endogeneity is not valid if the over-identifying restrictions test rejects the appropriateness of the instruments (Larcker & Rusticus, 2010).

engagement. We find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 1.70) and on $IND\_SPEC_{i,t}$ (t-statistic = 2.55), which support results from the main analysis.

---------- Insert Table 5 about here ----------

Despite the results shown in Tables 4 and 5, we concede that it is impossible to completely rule out concerns about unobservable auditor characteristics that might be correlated with the test variables as well as with our dependent variable. Therefore, we do not claim to have completely resolved the endogeneity issue.

7.3. Sensitivity Analyses

7.3.1. Different measures of social capital

In our main analyses, we proxy social capital with *degree centrality*, but scholars disagree about which measure best operationalizes social capital (Carrera, Sohail, & Carmona, 2017). Therefore, in sensitivity analyses, we use two other common proxies of social capital: *betweenness centrality* and *eigenvector centrality* (Borgatti et al., 2013; Payne et al., 2011).[20]

$BETWEENNESS_{i,t}$ centrality captures the volume of information that flows through the focal auditor in the network; it is interpreted as a measure of power (Borgatti et al., 2013). Auditors with high *betweenness centrality* can exploit their position to broker information among otherwise unconnected auditors. In other words, auditors with high *betweenness centrality* are nodes that connect discrete large groups of auditors. We measure $BETWEENNESS_{i,t}$ as $\Sigma\,[P_x(y,z)/P(y,z)]/[(n-1)(n-2)/2]$, where *x*, *y*, and *z* are distinct auditors; *n* is the total number of auditor nodes in the network; $P_x(yz)$ indicates the total number of shortest paths connecting auditor *y* and auditor *z* that pass through auditor *x*; and $P(yz)$ indicates the total number of shortest paths between

[20] In Appendix B, we provide an example of an auditor network.

auditor *y* and auditor *z* in the network. We normalize *betweenness centrality* by scaling each measure by the maximum possible value and express it as a percentage. Table 6, columns 1 and 2 show the results when we proxy social capital with $BETWEENNESS_{i,t}$. In column 1, we show results when $COMPENSATION_{i,t}$ is the dependent variable. We find significant positive coefficients on $BETWEENNESS_{i,t}$ (t-statistic = 6.12), which provides evidence for hypothesis 1, and on $IND\_SPEC_{i,t}$ (t-statistic = 4.73), which confirms our main results for hypothesis 2. In column 2, we show results when $AVFEE_{i,t}$ is the dependent variable. We find significant positive coefficients on $BETWEENNESS_{i,t}$ (t-statistic = 2.16), which supports hypothesis 1, and on $IND\_SPEC_{i,t}$ (t-statistic = 4.06), which supports hypothesis 2.

Our third proxy for social capital is *eigenvector centrality* ($EIGENVECTOR_{i,t}$), which represents power and prestige, which ultimately improve access to information and resources within the network (Larcker et al., 2013, p. 232). We measure *eigenvector centrality* as the number of direct links between an auditor and other auditors in the network, weighting the links according to how well-connected the other auditors in the network are. Given an adjacency matrix A, the *eigenvector centrality* of auditor *x* with respect to all neighbors *y* is given by $cx=a\sum A_{xy}c_y$, where *a* represents the reciprocal of the maximizing eigenvalue. We normalize *eigenvector centrality* by scaling each value by the maximum possible value and express it as a percentage. Table 6, columns 3 and 4 show the results of this sensitivity analysis. In column 3, $COMPENSATION_{i,t}$ is the dependent variable. We find significant positive coefficients on $EIGENVECTOR_{i,t}$ (t-statistic = 6.67), providing evidence for hypothesis 1, and on $IND\_SPEC_{i,t}$ (t-statistic = 4.00), confirming our main results for hypothesis 2. In column 4, $AVFEE_{i,t}$ is the dependent variable. The coefficient on $EIGENVECTOR_{i,t}$ is positive but insignificant (t-statistic = 1.44). We find a significant positive coefficient on $IND\_SPEC_{i,t}$ (t-statistic = 4.05), which supports hypothesis 2.

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7.3.2. Selection of the organizational form

In our main analysis, we find no significant results for $PROPRIETOR_i$, which suggests that the choice of the organizational form of the audit firm (sole proprietorship vs. partnership) is not associated with differences in compensation. However, this result might be explained by the fact that an auditor's decision to become a sole proprietor is endogenous. We argue that this decision can be viewed as predetermined with respect to the current level of compensation if the choice was made much earlier than the current period. Therefore, the $PROPRIETOR_i$ variable is less likely to be affected by endogeneity bias in a sample of auditors who have been sole proprietors for a long time than in a sample of auditors who have been sole proprietors for a short time.

Nevertheless, we conduct analyses using matched propensity scores to ensure that sole proprietors and auditors practicing in partnerships have similar characteristics, which minimizes the correlation between $PROPRIETOR_i$ and the remaining independent variables, thus reducing concerns about 'functional form misspecification' bias (Shipman, Swanquist, & Whited, 2017).

We model the auditor's decision to become a sole proprietor as follows:

$$\begin{aligned} PROPRIETOR_{i,t} = {} & \beta_0 + \beta_1 SOCIAL\_CAPITAL_{i,t} + \beta_2 IND\_SPEC_{i,t} + \beta_3 LNAPPOINTMENT_{i,t} \\ & + \beta_4 LAGE_{i,t} + \beta_5 LEXPERIENCE_{i,t} + \beta_6 CHAIR_{i,} + \beta_7 STATUS_i \\ & + \beta_8 BACHELOR_i + \beta_9 FEMALE_i + \beta_{10} LOCALLY\_BORN_i + \beta_{11} TA_{i,t} \\ & + \beta_{12} LEVERAGE_{i,t} + \beta_{13} GROWTH_{i,t} + \beta_{14} CFO_{i,t} + \beta_{15} QUICK\ \ RATIO_{i,t} \\ & + \beta_{16} CATA_{i,t} + \varepsilon_I, \end{aligned} \quad (3)$$

where the dependent variable ($PROPRIETOR_i$) is defined as before.

Equation (3) includes all the independent variables from Equation (1), because the literature provides limited guidance on the determinants of $PROPRIETOR_i$ (e.g., Carrera et al., 2008). In untabulated analysis, we find significant negative coefficients on $IND\_SPEC_{i,t}$ (z-

statistic = –1.84), $LNAPPOINTMENTS_{i,t}$ (z-statistic = –2.56), $LEXPERIENCE_{i,t}$ (z-statistic = –1.92), and $STATUS_i$ (z-statistic = –2.06). We also find a significant positive coefficient on $LAGE_{i,t}$ (z-statistic = 7.05). In accord with results from the descriptive analysis, we find that sole proprietors are older, less specialized, and less experienced, and they have fewer engagements and lower status than auditors working in partnerships.

Next, we use the results from Equation (3) to match, without replacement, each observation in the sole-proprietors sample to its closest match in the partners sample within a maximum distance of three percent (Lawrence, Minutti-Meza, & Zhang, 2011). We obtain a sample of 741 observations for sole proprietors and 741 observations for matched partners. Table 7, Panel A reports the mean values for all the variables in the two samples. The differences are generally insignificant, indicating that the propensity score matching procedure has achieved adequate covariate balance between the treatment and control groups, allowing us to control better for potential confounds (Armstrong, Jagolinzer, & Larcker, 2010).

Next, we reestimate the models for $COMPENSATION_{i,t}$ and $AVFEE_{i,t}$ using the matched sample. Table 7, Panel B, column 1 shows the results for $COMPENSATION_{i,t}$. We find an insignificant coefficient on $PROPRIETOR_i$ and significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 3.39) and $IND\_SPEC_{i,t}$ (t-statistic = 4.44). Table 7, Panel B, column 2 shows the results for $AVFEE_{i,t}$. Again, we find an insignificant coefficient on $PROPRIETOR_i$ and significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 2.65) and $IND\_SPEC_{i,t}$ (t-statistic = 3.26). Overall, this sensitivity analysis supports our main results.

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7.3.3. Other sensitivity analyses

Following previous studies, in the main analysis we winsorize all the continuous variables at the top and bottom one percent. As a sensitivity analysis, we winsorize continuous variables at the

top and bottom two percent. In untabulated analyses, when the dependent variable is $COMPENSATION_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 6.09) and on $IND\_SPEC_{i,t}$ (5.63), corroborating our main findings. Similarly, when the dependent variable is $AVFEE_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 2.66) and on $IND\_SPEC_{i,t}$ (t-statistic = 4.00), again confirming our main results.

In the main analysis, we allocate to the chair double the amount received by the other two members; as a sensitivity analysis, we allocate the BSA compensation equally among the three members. In untabulated analyses, when the dependent variable is $COMPENSATION_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 7.59) and on $IND\_SPEC_{i,t}$ (5.34); when the dependent variable is $AVFEE_{i,t}$, we again find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 1.99) and on $IND\_SPEC_{i,t}$ (t-statistic = 4.39). All four findings are consistent with our main results.

Our research design does not allow us to map appointments that auditors in our sample might have outside the Verona region, so our results might be driven by auditors who are (for our purposes) only part-time. To address this issue, we run two additional analyses. First, we exclude observations in the first quintile of auditors' yearly compensation. In untabulated analyses, when the dependent variable is $COMPENSATION_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 7.29) and on $IND\_SPEC_{i,t}$ (t-statistic = 2.20). Again, when the dependent variable is $AVFEE_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 3.14) and on $IND\_SPEC_{i,t}$ (t-statistic = 2.42). Second, we exclude observations of auditors with only one appointment. In untabulated analyses, when the dependent variable is $COMPENSATION_{i,t}$, we find significant positive coefficients on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 5.63) and on $IND\_SPEC_{i,t}$ (t-statistic = 1.96). When the dependent variable is $AVFEE_{i,t}$, we find a significant positive coefficient on $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 1.93) and a positive

although not significant coefficient on $IND\_SPEC_{i,t}$. Together, these additional analyses corroborate our main results.

In an additional analysis, we examine the interaction effect of social capital and industry expertise on auditor compensation by adding to our empirical models an interaction, $SOC\_CAP\_IND\_SPEC_{i,t}$. Results are shown in Table 8. In Panel A, Column 1, we find that the main effect for $SOCIAL\_CAPITAL_{i,t}$ is no longer significant, whereas we find significant negative coefficient on $IND\_SPEC_{i,t}$ (t-statistic = -6.06) and a positive and significant coefficient on $SOC\_CAP\_IND\_SPEC_{i,t}$ (t-statistic = 8.14). In order to interpret the effect of the interaction term, we calculate differences in compensation between industry specialists and non-specialists and we graph the resulting average marginal effects of industry expertise in Table 8, Panel B.[21] It is interesting to notice that for values of $SOCIAL\_CAPITAL_{i,t}$ below the median ($SOCIAL\_CAPITAL_{i,t} < 4$) the coefficient is negative and significantly different from zero, while for values of social capital above the median specialists earn higher levels of compensation. This result suggests that for lower levels of social capital, industry specialists earn comparatively less relative to non-specialists, while specialists' compensation increases for higher levels of social capital.

When the dependent variable is $AVFEE_{i,t}$, we find significant positive coefficients on both $SOCIAL\_CAPITAL_{i,t}$ (t-statistic = 3.70) and $IND\_SPEC_{i,t}$ (t-statistic = 3.39), and a significant negative coefficient on $SOC\_CAP\_IND\_SPEC_{i,t}$ (t-statistic = - 2.78). In Table 8, Panel C, we graph the average marginal effects of industry expertise. For values within the first three quartiles of the distribution of social capital, we find that industry specialists earn comparatively higher compensation relative to non-specialists. While, for values in the last quartile of the distribution

[21] We use *marginsplot* command in STATA to graph the differences between specialists and non-specialists.

of social capital, we find that specialists earn lower levels of compensation relative to non-specialists, but these differences in compensation are no longer statistically significant.

---------- Insert Table 8 about here ----------

8. Conclusion

Our empirical finding that auditor compensation is positively associated with social capital and human capital suggests that in the small audit market clients perceive as valuable those auditors with higher social and human capital, and as a result, are willing to pay a premium for these specific auditor attributes. Our results are in line with those reported by Pennings et al. (1998), who conclude that both human capital and social capital confer a competitive advantage on auditors, even sole proprietors. Interestingly, we do not find that organizational form (sole proprietorship vs. partnership) affects compensation, which provides a plausible explanation as to why we still find sole proprietors alongside partnerships: the small audit market does not penalize individual auditors in terms of compensation. However, more research is needed in order to understand the reasons behind auditors' choice of organizational form. Our result suggests that these reasons are likely to be found by exploring the non-monetary aspects of occupational choice (Hilbrecht & Lero, 2014).

Our findings are important to the profession and policy makers. We offer empirical support to professional reports highlighting the complexity of audits of small clients, which requires individual practitioners to have a broad set of skills (CFRR, 2016; IFAC, 2010) not only for the verification of the financial statements but also for a more general advisory role that the auditor plays for private clients. This combination of roles places the auditor in a difficult position because she must also guard her independence (CFRR, 2016). In assessing quality control for small audit firms and deciding on rules affecting the provision of additional services, regulators

need to consider this additional complexity.

The results of this study are subject to a number of limitations. Our ability to study networks depends on the peculiar features of Italian joint audit settings, limiting the generalizability of our results. However, the Italian institutional setting does resemble other European joint audit settings like France, Denmark, Sweden, and Finland (André, Broye, Pong, & Schatt, 2016; Audousset-Coulier, 2015; Ittonen & Trønnes, 2015). Another limitation is that auditors' networks may extend beyond those examined in this paper and may include non-professional relationships as well. The literature on board interlocks suggests that formal and informal networks are positively correlated and can be strategically complementary. Future research can apply our research design to other joint audit settings, to further explore the economic consequences of auditor social capital. Finally, the impossibility of knowing the exact amount charged by each BSA member to the client might affect the power of our tests. Anecdotal evidence gathered in conversations with practitioners indicates that our method fairly reflects the fee amount charged by BSA members. Still, it would be very useful to gain more precise information about auditor compensation in order to investigate further the costs and benefits of pricing in the small audit firm market.

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APPENDIX A –Variable Definitions

$COMPENSATION_{i,t}$	=	compensation calculated as the total BSA fees that auditor *i* receives in year *t*.
$AVFEE_{i,t}$	=	average fees per BSA engagement of auditor *i* received in year *t*.
$SOCIAL\_CAPITAL_{i,t}$	=	the number of auditors in the network connected to auditor *i* in year *t* (*degree centrality*).
$BACHELOR_i$	=	indicator variable equal to one if auditor *i* has a bachelor's degree, and zero otherwise.
$IND\_SPEC_{i,t}$	=	indicator variable equal to one if auditor *i* is an industry leader in at least one of the industries where she operates, zero otherwise. An industry leader has a market share (in terms of clients' total assets) that falls in the top quartile of the distribution in year *t*.
$PROPRIETOR_i$	=	indicator variable equal to one if auditor *i* is organized as a sole proprietor, zero otherwise.
$LNAPPOINTMENTS_{i,t}$	=	natural logarithm of number of BSA engagements in year *t*.
$LAGE_{i,t}$	=	natural logarithm of auditor's age in year *t*.
$LEXPERIENCE_{i,t}$	=	natural logarithm of years since licensure in year *t*.
$CHAIR\ (\%)_{i,t}$	=	percentage of BSAs where auditor *i* acts as the chair in year *t*.
$STATUS_i$	=	indicator variable equal to one if auditor *i* is a member of one of the two local social clubs, and zero otherwise.
$FEMALE_i$	=	indicator variable equal to one if auditor *i* is a female, and zero otherwise.
$LOCALLY\_\ BORN_i$	=	indicator variable equal to one if auditor *i* was born in the province of Verona, and zero otherwise.
$LTA_{i,t}$	=	natural logarithm of the average of total assets of auditor *i's* clients in year *t*.
$LEVERAGE_{i,t}$	=	average annual leverage ratio [(short-term debt + long-term debt)/ average total assets] of auditor *i's* clients in year *t*.
$GROWTH_{i,t}$	=	average annual sales growth of auditor *i's* clients in year *t*.
$CFO_{i,t}$	=	average annual cash from operations ratio [(earnings + depreciation + change current liabilities-change current assets)/average total assets] of auditor *i's* clients in year *t*.
$QUICK\ RATIO_{i,t}$	=	average ratio of current assets, net of inventory, to total sales of auditor *i's* clients in year *t*.
$CATA_{i,t}$	=	average ratio of current assets to total assets of auditor *i's* clients in year *t*.
$ENTRY_i$	=	natural logarithm of age of auditor *i* at the time of receiving the audit license.
$PLACE\ OF\ BIRTH_i$	=	size of the town where an auditor was born, measured as the population of the town, scaled by the population of the geographic region to which the town belongs, during the decade when an auditor was born.
$BETWEENNESS_{i,t}$	=	$\Sigma\ [P_i(y,z)/\ P(y,z)]/[(n\text{-}1)(n\text{-}2)/2]$, where $P_i(yz)$ indicates the total number of shortest paths connecting auditor *y* and auditor *z* that pass through auditor *i*, and $P(yz)$ indicates the total number of shortest paths between auditor *y* and auditor *z* in the network, where *i, y,* and *z* are distinct auditors and *n* is the total number of auditor nodes in the network. We normalize betweenness centrality by scaling each measure by the maximum possible value. This normalized measure is expressed as a percentage (i.e., 2.5% is expressed as 2.5).
$EIGENVECTOR_{i,t}$	=	given an adjacency matrix *A*, the eigenvector centrality of auditor *i* compared to all neighbors *y* is given by $c_i=a\sum A_{iy}c_y$, where *a* is a parameter that represents the reciprocal of the maximizing eigenvalue. We normalize eigenvector centrality by scaling each value by the maximum possible value. This normalized measure is expressed as a percentage.

APPENDIX B –Calculation of Network Measures

Figure B.1 shows an example of the kind of auditor network examined in this paper.[22] There are seven clients' BSAs (triangles) and thirteen auditors (vertices or nodes). Auditor D has the highest social capital, measured as *degree centrality* (six). Auditor E has the same *degree centrality* score as auditor D, but (1) audits fewer clients (three), (2) is linked to less-connected auditors, and (3) plays the role of gatekeeper among the other auditors in her network. With respect to item (2), E's contacts (J, H, G, and F) audit only one client, whereas two contacts in D's network (i.e., L and M) audit two clients. This results in a higher *EIGENVECTOR* score for auditor D. With respect to item (3), auditor E is fundamental for E's contacts to connect among each other, while auditor D is not fundamental to connect auditor K to auditor N, who can also connect through auditors L and M. This results in a higher *BETWEENNESS* score for auditor E.

Figure B.1 Example of an auditor network

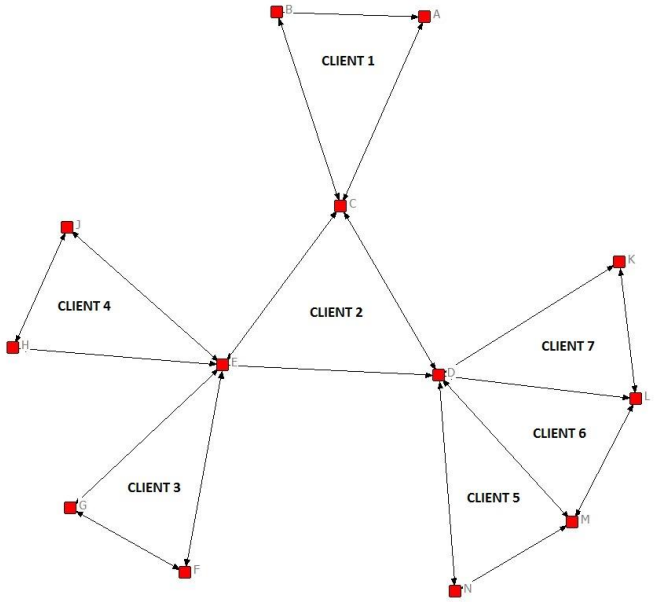

Table B.1 Measures of centrality

AUDITOR	CLIENT	N. BSA	DEGREE_CENTRALITY	EIGENVECTOR	BETWEENNESS
A	1	1	2	0.136	0
B	1	1	2	0.136	0
C	1, 2	2	4	0.345	20
D	2, 5, 6, and 7	4	6	0.513	34
E	2, 3, and 4	3	6	0.436	36
F	3	1	2	0.172	0
G	3	1	2	0.172	0
H	4	1	2	0.172	0
J	4	1	2	0.172	0
K	7	1	2	0.227	0
L	6 and 7	2	3	0.291	0.5
M	5 and 6	2	3	0.291	0.5
N	5	1	2	0.227	0

[22] For other examples of auditor networks please refer to Horton et al. (2014) and Bianchi (2018).

Table 1. Sample statistics
Panel A: Descriptive statistics (n=2,605)

	Mean	Median	Minimum	Maximum	SD
COMPENSATION (000)	16.04	9.13	1.18	124.10	20.26
AVFEE (000)	5.83	5.20	1.18	18.35	3.11
SOCIAL_CAPITAL	5.82	4.00	2.00	56.00	5.24
BACHELOR	0.73	1.00	0.00	1.00	0.44
IND_SPEC	0.42	0.00	0.00	1.00	0.49
PROPRIETOR	0.36	0.00	0.00	1.00	0.48
APPOINTMENTS	3.85	3.00	1.00	40.00	4.02
AGE (years)	51.43	49.00	27.00	92.00	11.84
EXPERIENCE (years)	19.93	18.00	0.00	59.00	10.58
CHAIR (%)	0.27	0.00	0.00	1.00	0.34
STATUS	0.09	0.00	0.00	1.00	0.29
FEMALE	0.14	0.00	0.00	1.00	0.35
LOCALLY BORN	0.81	1.00	0.00	1.00	0.40
TA (000)	47,905.35	22,763.00	1,048.00	517,773.00	77,498.98
LEVERAGE	0.70	0.71	0.14	1.31	0.19
GROWTH	0.05	0.01	-0.71	2.37	0.37
CFO	0.06	0.05	-0.46	0.75	0.18
QUICK RATIO	1.23	0.96	0.13	8.07	1.07
CATA	0.69	0.72	0.06	1.00	0.21

This table presents descriptive statistics for the variables used in the main analyses that are conducted at the auditor-year level. All variables are listed in Appendix A.

Table 2. Correlation matrix (n=2,605)

		1	2	3	4	5	6	7	8	9	10
COMPENSATION	1	1									
AVFEE	2	0.4855*	1								
SOCIAL_CAPITAL	3	0.7863*	0.2108*	1							
IND_SPEC	4	0.4651*	0.3316*	0.4207*	1						
LNAPPOINTM.	5	0.7434*	0.1885*	0.8715*	0.4718*	1					
LAGE	6	0.2439*	0.2193*	0.2024*	0.1612*	0.2092*	1				
LEXPERIENCE	7	0.2786*	0.1965*	0.2917*	0.1470*	0.3060*	0.7743*	1			
CHAIR (%)	8	0.3159*	0.4622*	0.2264*	0.0813*	0.2055*	0.3153*	0.2881*	1		
PROPRIETOR	9	-0.1402*	0.0081	-0.2128*	-0.1192*	-0.2362*	0.2600*	0.1074*	0.018	1	
STATUS	10	0.1805*	0.0894*	0.1916*	0.1304*	0.2154*	0.2018*	0.1916*	0.0900*	-0.0779*	1
BACHELOR	11	0.0710*	0.0762*	0.0543*	0.0470*	0.035	-0.1104*	-0.2311*	0.0011	0.014	0.0079
FEMALE	12	-0.1027*	-0.0830*	-0.1446*	-0.0538*	-0.1209*	-0.2437*	-0.2139*	-0.1662*	-0.0825*	-0.0675*
LOCALLY BORN	13	-0.0134	0.0095	0.0012	-0.0361	-0.0309	-0.1637*	-0.0678*	-0.0244	-0.1120*	-0.0369
LTA	14	0.3008*	0.4194*	0.1805*	0.5353*	0.2250*	0.1062*	0.0813*	0.0173	-0.0113	0.0626*
LEVERAGE	15	-0.0342	0.0328	-0.0532*	-0.0394*	-0.0736*	-0.1041*	-0.0627*	-0.0262	0.0174	-0.1004*
GROWTH	16	0.0322	0.0477*	0.0324	0.0197	0.0215	-0.0245	-0.0153	0.0064	-0.0007	-0.0203
CFO	17	0.0251	0.0430*	0.0117	0.0596*	0.0091	-0.0419*	-0.0386*	-0.0152	-0.0312	0.0217
QUICK RATIO	18	0.0346	-0.0165	0.0581*	0.0347	0.0708*	0.0410*	0.0508*	-0.0252	0.0184	0.0542*
CATA	19	0.0036	0.0582*	-0.0087	-0.0532*	-0.0002	-0.0867*	-0.0299	-0.0368	0.0257	-0.0619*

		11	12	13	14	15	16	17	18	19
BACHELOR	11	1								
FEMALE	12	0.0371	1							
LOCALLY BORN	13	-0.1001*	0.0411*	1						
LTA	14	0.0104	-0.0546*	-0.0191	1					
LEVERAGE	15	-0.0611*	0.0064	0.0212	0.027	1				
GROWTH	16	0.0368	-0.0272	-0.0001	0.0746*	0.0314	1			
CFO	17	0.0298	0.0202	-0.0043	0.1611*	-0.0157	0.3414*	1		
QUICK RATIO	18	0.0267	-0.0033	-0.0034	-0.1059*	-0.4630*	-0.0665*	-0.0752*	1	
CATA	19	-0.0298	0.0078	0.0079	-0.0431*	0.3979*	0.0343	0.0347	-0.0031	1

*This table shows results of the Pearson correlation matrix, where a star indicates that the correlation is significant at the 0.05 level or better. All variables are listed in Appendix A.

Table 3. Results, auditor compensation model

	Hypotheses	*COMPENSATION* (1)	*AVFEE* (2)
SOCIAL_CAPITAL	(H1)	2.155***	0.069**
		[7.91]	[2.48]
IND_SPEC	(H2)	2.768***	0.698***
		[4.20]	[3.98]
PROPRIETOR		0.783	-0.018
		[0.93]	[-0.10]
BACHELOR		1.249	0.576***
		[1.45]	[3.31]
LNAPPOINTMENTS		5.892***	-0.799***
		[2.89]	[-3.03]
LAGE		1.241*	0.076
		[1.93]	[0.47]
LEXPERIENCE		-0.797	0.108
		[-1.57]	[0.70]
CHAIR (%)		8.670***	4.063***
		[7.19]	[13.88]
STATUS		0.598	0.237
		[0.28]	[0.95]
FEMALE		2.273***	0.205
		[2.87]	[0.97]
LOCALLY BORN		0.474	0.299
		[0.45]	[1.47]
LTA		3.106***	1.421***
		[4.83]	[12.14]
LEVERAGE		0.968	0.352
		[0.64]	[0.72]
GROWTH		-0.271	0.089
		[-0.50]	[0.63]
CFO		-1.076	-0.573*
		[-1.17]	[-1.95]
QUICK RATIO		0.021	0.093
		[0.08]	[1.33]
CATA		2.837**	1.552***
		[2.06]	[3.47]
INTERCEPT		-43.8165***	-10.724***
		[-6.39]	[-9.09]
Observations		2,605	2,605
R-squared		0.688	0.427
Year Fixed Effects		YES	YES

The columns show results from OLS regression of compensation on auditors' characteristics and the control variables. The models include year-specific intercepts, but for brevity these are not reported. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All *t*-statistics (in brackets) and p-values are calculated using standard errors clustered by auditor. All variables are listed in Appendix A.

Table 4. Results, auditor compensation model with auditor fixed effects

	Hypotheses	*COMPENSATION* (1)	*AVFEE* (2)
SOCIAL_CAPITAL	(H1)	0.821*	0.051
		[1.82]	[0.91]
IND_SPEC	(H2)	2.633***	-0.127
		[3.70]	[-0.57]
LNAPPOINTMENTS		7.632***	-0.660
		[3.05]	[-1.37]
LAGE		-7.702	1.075
		[-0.58]	[0.35]
LEXPERIENCE		3.778	0.125
		[0.77]	[0.15]
CHAIR (%)		4.524***	3.358***
		[2.92]	[6.09]
LTA		2.237***	1.426***
		[2.92]	[5.97]
LEVERAGE		4.668*	0.647
		[1.85]	[0.79]
GROWTH		-0.320	-0.030
		[-0.45]	[-0.20]
CFO		-2.233**	-0.366
		[-2.37]	[-1.08]
QUICK RATIO		0.191	0.000
		[0.59]	[-0.01]
CATA		0.057	0.956
		[0.02]	[1.21]
INTERCEPT		-16.129	-11.565***
		[-1.01]	[-2.94]
Observations		2,605	2,605
R-squared		0.941	0.864
Year Fixed Effects		YES	YES
Testing the significance of auditor fixed effects:			
F-statistic		9.757	7.349
p-value		0.001	0.001

This table presents results from OLS regressions with auditor fixed effects. The models include year-specific intercepts, but for brevity these are not reported. All *t*-statistics (in brackets) and p-values are calculated using standard errors clustered by auditor. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All variables are listed in Appendix A.

Table 5. Test of endogeneity by means of instrumental variables
Panel A: First stage regression—auditor social capital

	SOCIAL_CAPITAL (1)
ENTRY	-2.917***
	[-2.68]
PLACE_BIRTH	1.541**
	[2.58]
IND_SPEC	0.281
	[1.36]
PROPRIETOR	-0.047
	[-0.31]
BACHELOR	0.414**
	[2.12]
LNAPPOINTMENTS	7.224***
	[17.09]
LAGE	0.831**
	[2.07]
LEXPERIENCE	-0.577*
	[-1.93]
CHAIR (%)	0.512**
	[2.50]
STATUS	-0.086
	[-0.18]
FEMALE	-0.518**
	[-2.29]
LOCALLY BORN	0.403*
	[1.78]
LTA	-0.195*
	[-1.66]
LEVERAGE	0.676**
	[2.02]
GROWTH	0.179
	[1.43]
CFO	0.202
	[1.00]
QUICK RATIO	0.045
	[0.67]
CATA	-0.342
	[-1.26]
INTERCEPT	6.637*
	[1.73]
Observations	2,580
R-squared	0.771
Year Fixed Effects	YES

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Table 5 (continued)
Panel B: Second stage regression—auditor compensation

Dependent variable	Hypotheses	*COMPENSATION* (1)	*AVFEE* (2)
SOCIAL_CAPITAL	(H1)	3.490***	0.488*
		[2.93]	[1.70]
IND_SPEC	(H2)	2.345***	0.553**
		[3.05]	[2.55]
PROPRIETOR		0.897	0.052
		[1.01]	[0.28]
BACHELOR		0.765	0.384*
		[0.70]	[1.68]
LNAPPOINTMENTS		-3.757	-3.838*
		[-0.43]	[-1.86]
LAGE		1.310*	0.097
		[1.83]	[0.54]
LEXPERIENCE		-1.024*	0.037
		[-1.91]	[0.22]
CHAIR (%)		7.858***	3.782***
		[5.45]	[11.34]
STATUS		0.690	0.244
		[0.30]	[0.79]
FEMALE		2.961***	0.421
		[2.76]	[1.52]
LOCALLY BORN		-0.150	0.115
		[-0.12]	[0.41]
LTA		3.397***	1.508***
		[5.08]	[10.58]
LEVERAGE		0.166	0.109
		[0.10]	[0.21]
GROWTH		-0.510	0.013
		[-0.88]	[0.08]
CFO		-1.421	-0.656**
		[-1.58]	[-2.08]
QUICK RATIO		0.000	0.077
		[0.00]	[0.99]
CATA		3.399**	1.678***
		[2.39]	[3.58]
INTERCEPT		-39.887***	-9.386***
		[-4.72]	[-5.76]
Observations		2,580	2,580
R-squared		0.660	0.306
Year Fixed Effects		YES	YES

This table shows the results of the first (Panel A) and second (Panel B) stages of the instrumental variable regression. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All *t*-statistics (in brackets) and p-values are calculated using standard errors clustered by auditor. The models include year-specific intercepts, but for brevity these are not reported. All variables are listed in Appendix A.

Table 6. Sensitivity analysis: different measures of social capital

	COMPENSATION	*AVFEE*	*COMPENSATION*	*AVFEE*
	(1)	(2)	(3)	(4)
BETWEENNESS	8.091***	0.234**		
	[6.12]	[2.16]		
EIGENVECTOR			1.194***	0.024
			[6.67]	[1.44]
IND_SPEC	3.196***	0.712***	2.977***	0.710***
	[4.73]	[4.06]	[4.00]	[4.05]
PROPRIETOR	0.764	-0.020	1.073	-0.016
	[0.91]	[-0.11]	[1.24]	[-0.09]
BACHELOR	1.472*	0.585***	1.230	0.586***
	[1.75]	[3.37]	[1.39]	[3.36]
LNAPPOINTMENTS	13.438***	-0.535***	15.992***	-0.413**
	[8.46]	[-2.71]	[9.80]	[-2.23]
LAGE	0.861	0.065	0.616	0.063
	[1.35]	[0.40]	[0.97]	[0.38]
LEXPERIENCE	-0.566	0.116	-0.420	0.120
	[-1.11]	[0.75]	[-0.80]	[0.77]
CHAIR (%)	8.988***	4.076***	10.589***	4.118***
	[7.36]	[13.93]	[8.28]	[14.11]
STATUS	1.053	0.250	-0.058	0.223
	[0.49]	[1.00]	[-0.03]	[0.88]
FEMALE	1.959**	0.193	0.823	0.163
	[2.50]	[0.92]	[0.96]	[0.77]
LOCALLY BORN	0.154	0.292	1.244	0.325
	[0.15]	[1.43]	[1.14]	[1.62]
LTA	2.977***	1.416***	2.741***	1.409***
	[4.60]	[12.15]	[4.08]	[12.09]
LEVERAGE	1.977	0.386	3.389**	0.418
	[1.34]	[0.79]	[2.09]	[0.85]
GROWTH	0.034	0.099	0.173	0.103
	[0.06]	[0.70]	[0.30]	[0.73]
CFO	-1.326	-0.579**	-1.258	-0.572*
	[-1.41]	[-1.97]	[-1.25]	[-1.95]
QUICK RATIO	0.139	0.096	0.361	0.100
	[0.53]	[1.38]	[1.35]	[1.43]
CATA	2.426*	1.537***	2.254	1.530***
	[1.72]	[3.44]	[1.52]	[3.43]
INTERCEPT	-43.817***	-10.755***	-47.655***	-10.880***
	[-6.39]	[-9.15]	[-6.38]	[-9.27]
Observations	2,605	2,605	2,605	2,605
R-squared	0.681	0.427	0.655	0.425
Year Fixed Effects	YES	YES	YES	YES

This table presents the results of OLS regression of compensation on auditors' characteristics. The models in all columns include year-specific intercepts, but for brevity these are not reported. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All *t*-statistics (in brackets) and p-values are calculated using standard errors clustered by auditor. All variables are listed in Appendix A.

Table 7. Sensitivity analysis: choice of organizational form
Panel A: Tests of differences in means between the treatment sample (sole proprietors) and the matched control (partnerships)

Variable	Partnerships	Sole Proprietors	Difference	T-test	
COMPENSATION (000)	12.66	13.31	-0.65	-0.8103	
SOCIAL_CAPITAL	4.70	4.63	0.08	0.4168	
IND_SPEC	0.36	0.37	0.00	-0.1619	
APPOINTMENTS	1.23	1.22	0.01	0.2197	
LAGE	0.14	0.16	-0.02	-0.3803	
LEXPERIENCE	0.14	0.09	0.05	1.0392	
CHAIR (%)	0.28	0.27	0.00	0.1764	
STATUS	0.08	0.07	0.01	0.8805	
BACHELOR	0.70	0.72	-0.02	-0.7453	
FEMALE	0.10	0.12	-0.03	-1.6654	*
LOCALLY BORN	0.80	0.80	0.00	0.1950	
LTA	9.40	9.44	-0.05	-1.0570	
LEVERAGE	0.71	0.71	0.00	-0.2021	
GROWTH	0.07	0.04	0.02	1.1366	
CFO	0.07	0.05	0.01	1.4946	*
QUICK RATIO	1.21	1.24	-0.03	-0.4723	
CATA	0.70	0.69	0.01	0.8200	
Observations	741	741			

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Table 7 (continued)
Panel B: Propensity score matching model

	Hypotheses	*COMPENSATION*	*AVFEE*
		(1)	(2)
SOCIAL_CAPITAL	(H1)	1.548***	0.142***
		[3.39]	[2.65]
IND_SPEC	(H2)	3.423***	0.762***
		[4.44]	[3.26]
PROPRIETOR		0.592	0.076
		[0.69]	[0.40]
BACHELOR		0.919	0.499**
		[1.02]	[2.35]
LNAPPOINTMENTS		7.257***	-1.381***
		[3.21]	[-3.52]
LAGE		0.568	0.012
		[0.84]	[0.07]
LEXPERIENCE		-0.095	0.259
		[-0.17]	[1.55]
CHAIR (%)		8.373***	3.966***
		[6.75]	[11.52]
STATUS		-1.250	0.070
		[-0.74]	[0.21]
FEMALE		1.084	0.132
		[1.56]	[0.56]
LOCALLY BORN		-1.229	-0.008
		[-0.95]	[-0.03]
LTA		3.072***	1.551***
		[4.88]	[10.73]
LEVERAGE		1.745	0.091
		[1.00]	[0.16]
GROWTH		-0.334	0.049
		[-0.54]	[0.27]
CFO		0.053	0.034
		[0.05]	[0.09]
QUICK RATIO		0.540*	0.092
		[1.71]	[1.10]
CATA		1.924	1.961***
		[1.28]	[3.99]
INTERCEPT		0.548	-11.29***
		[1.36]	[-7.99]
Observations		1,482	1,482
R-squared		0.592	0.444
Year Fixed Effects		YES	YES

This table presents results from a matched propensity scores analysis. Panel A reports differences-in-means between the sole proprietors sample and the partners sample. Panel B reports the second-stage model of auditor compensation. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All *t*-statistics (in brackets) and p-values are calculated using standard errors clustered at the auditor level. The models include year-specific intercepts, but for brevity these are not reported. All variables are listed in Appendix A.

Table 8. Additional Analysis: interaction effect between social capital and human capital
Panel A: Multivariate regression

Dependent Variable	*COMPENSATION*	*AVFEE*
	(1)	(2)
SOCIAL_CAPITAL	-0.266	0.185***
	[-0.70]	[3.70]
IND_SPEC	-8.812***	0.589***
	[-5.67]	[3.39]
SOC_CAP_IND_SPEC	2.245***	-0.108***
	[8.14]	[-2.78]
LNAPPOINTMENTS	11.396***	1.255***
	[4.94]	[4.36]
AGE	1.150*	-0.002
	[1.81]	[-0.01]
EXPERIENCE	-0.792	-1.064***
	[-1.52]	[-3.75]
CHAIR (%)	8.867***	0.080
	[7.22]	[0.50]
PROPRIETOR	0.450	0.108
	[0.58]	[0.70]
STATUS	0.741	4.054***
	[0.38]	[14.03]
BACHELOR	0.969	0.230
	[1.22]	[0.92]
FEMALE	1.897**	0.223
	[2.49]	[1.06]
LOCALLY BORN	0.424	0.301
	[0.44]	[1.48]
TA	3.388***	1.408***
	[5.26]	[12.13]
LEVERAGE	1.676	0.318
	[1.14]	[0.66]
GROWTH	-0.417	0.096
	[-0.83]	[0.68]
CFO	-0.413	-0.605**
	[-0.46]	[-2.06]
QUICK RATIO	0.146	0.087
	[0.56]	[1.27]
CATA	2.115	1.586***
	[1.55]	[3.54]
INTERCEPT	-42.658***	-10.780***
	[-6.24]	[-9.16]
Observations	2,605	2,605
R-squared	0.718	0.430

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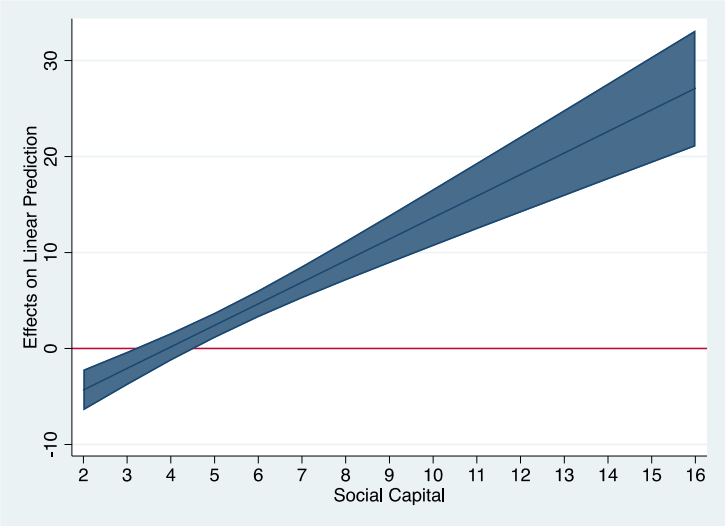
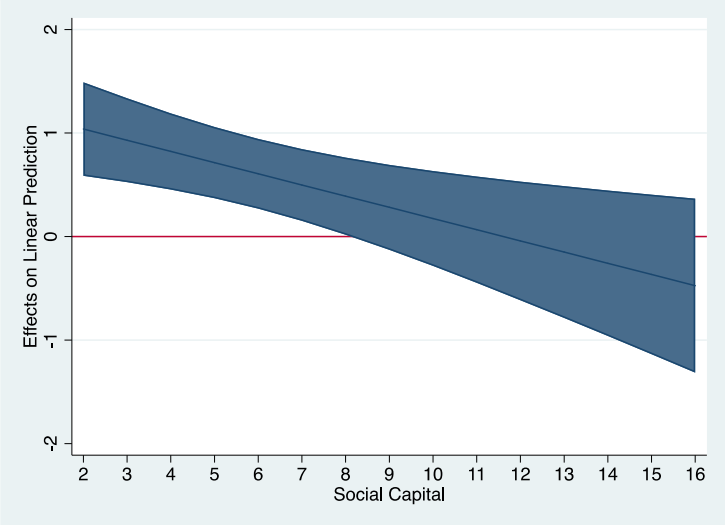
Table 8 (continued)
Panel B: Average marginal effects of industry expertise on *COMPENSATION*



Panel C: Average marginal effects of industry expertise on *AVFEE*



This table presents the interaction effect between human capital and social capital. In Panel A, we show results from OLS regression of compensation on auditors' characteristics, where *SOC_CAP_IND_SPEC* is the interaction between *SOCIAL_CAPITAL* and *IND_SPEC*. The models in all columns include year-specific intercepts, but for brevity these are not reported. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively. All *t*-statistics (in brackets) and p-values are calculated using cluster standard errors by auditor. Panel B shows the plot of the average marginal effects of industry expertise for different levels of social capital on *COMPENSATION*. Panel C shows the plot of the average marginal effects of industry expertise for different levels of social capital on *AVFEE*. In both Panel B and C, the blue line identifies industry specialists and the red line identifies non-specialists. Both graphs show 95% confidence intervals.